

BULLETIN

No. 62



THE RAILWAY AND LOCOMOTIVE HISTORICAL SOCIETY

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The Atlantic type locomotive has had its advocates and those opposed to it. Like the other lighter types of locomotives, increase in the weight of trains has driven it from the "head end." Whether this type will ever stage a "comeback" is an open question. On the other hand, if the railroads should ever conclude to quit dragging around these heavy Dreadnaught steel coaches and substitute in their stead lighter steel equipment of the same tensile strength and of a weight that would furnish easy and comfortable riding, mounting this equipment on roller bearings, then this type of locomotive again might be considered, for if speed means anything, and I think it will after this war, this type has proven that it can hold its own and is superior to many of the others. Our member, Mr. Paul T. Warner has presented a very valuable and interesting account of this type of locomotive.

When our members turn to the pages containing the ballad of Dr. Carrie Weaver Smith on Andrews' Raid, please don't feel that we have turned away from prose altogether. The author of this poem was an unusually talented woman and a fine character. Although the subject is well known to the majority of us, I believe it is the first time that it has ever appeared in this form. Unfortunately she did not live to complete

the ballad and rather than have some one else attempt to finish it in that form, it has been reproduced just as she left it and one of her friends, Mr. Richard Hogue has completed the story.

Prof. Mills has favored us with an account of a little road on the Pacific Coast and a newcomer to our columns, Mr. Erhardt, has favored us with a brief account of the Bath & Hammondsport R. R. Mr. Martin has given us the story of a Wisconsin Central locomotive whose likeness will be found in a church window in Stevens Point, Wisconsin, and your Editor has contributed a paper that he hopes will clear up some of the matters relative to our very earliest locomotives.

Lastly, the appearance of the account of "Miss C. P. Huntington" in our BULLETIN 61, prompted "Miss Emma Nevada Kimball" to address "Miss Huntington" of her experiences. It is not our object to pry into the personal affairs of these elderly "ladies" but we believe that this letter will be of interest to our members. Certainly the work done in restoring this locomotive by Mr. Ward Kimball and his many helpers, not forgetting Mrs. Kimball, are worthy of recording in our publication.

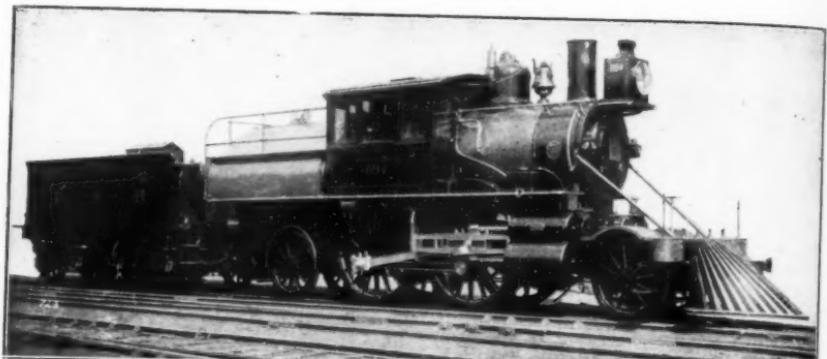
Publications

Of the Pennsylvania R. R. publications announced in our BULLETIN 61—the one on the Western New York & Pennsylvania R. R. is now ready for distribution and copies may be obtained, upon receipt of 50c from our member, Mr. Norman J. Perrin, 4523 Arabia Ave., Baltimore (14), Maryland. The other two listed will probably appear before the year is ended.

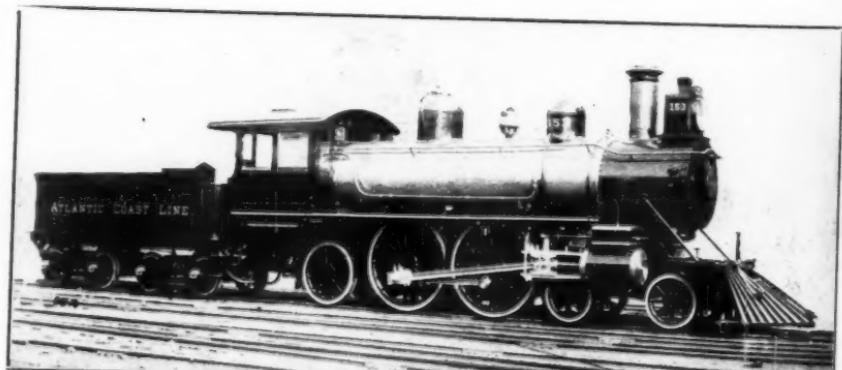
A few copies of the publication—"At Baltimore," furnished our members through the kindness of Mr. Robert M. Van Sant, Director of Public Relations of the Baltimore & Ohio R. R., remain with your Editor. This booklet covered a speech made by Mr. R. E. White, President of the Baltimore & Ohio R. R. and contained extracts from the original records of one hundred years ago. To any of our members who either did not receive their copy or to those who have joined since these copies were distributed, we will gladly mail them a copy of this interesting booklet, free of charge as long as our supply lasts.

Finally, BULLETIN #63 will be ready in January. This, together with a brief history, will contain a complete roster of M-K-T motive power. Payment of this bulletin can be included with your 1944 membership dues.

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—Courtesy of Baldwin Locomotive Works.
P. & R. #694—Columbia type—Built 1892.



—Courtesy of Baldwin Locomotive Works.
A. C. L. #153—Baldwin 1895. 19x24" 72". One of the first Atlantic types.

Atlantic Type Locomotives

By PAUL T. WARNER

There are two fundamental principles which must receive first consideration in the design of any steam locomotive. They are:—

FIRST—The maximum tractive force—and hence the weight of train which the locomotive can start—depends primarily upon the weight resting on the driving wheels.

SECOND—After the train is started, the speed at which the locomotive can haul it depends primarily upon the steaming capacity of the boiler.

A study of the proportions of locomotives designed for different classes of service will illustrate how these principles apply. A switching locomotive must start heavy loads, but it moves them at slow speed; hence the entire weight of the locomotive can be carried on the drivers, and a boiler of sufficient capacity to furnish all the steam required can be applied without exceeding the weight limits. But if the locomotive is to be used in high speed service, a larger boiler must be applied, and truck or carrying wheels must be used in addition to the drivers. These truck wheels serve the dual purpose of guiding the locomotive around curves, and carrying the additional weight of the larger boiler.

The 4-4-0, or American type of locomotive, first patented by Henry R. Campbell in 1836, and fitted with equalizing beams by Joseph Harrison, Jr., about two years later, worked the great bulk of the passenger traffic in this country—and much of the freight—up to the early 1890's. It carried approximately two-thirds of the total locomotive weight on drivers, was reliable in operation and easy to maintain, and was of sufficient capacity for most of the passenger traffic of the period. Train speeds, however, were increasing; this meant larger drivers, and this in turn, in order to develop the required starting tractive force, meant larger cylinders. But to supply these cylinders with steam, and to develop the increased horsepower at the higher speeds, required greater boiler capacity. The 4-4-0 type was rapidly reaching a point where further development, without resorting to excessive wheel loads, was practically impossible. Even if weights could have been materially increased without over-loading the rails, the problem of firebox design would have been difficult. Ample depth of firebox, which was important in burning bituminous coal, could not be combined with a wide grate placed above large driving wheels, and it was becoming evident that a radical change in wheel arrangements and locomotive proportions would soon be necessary.

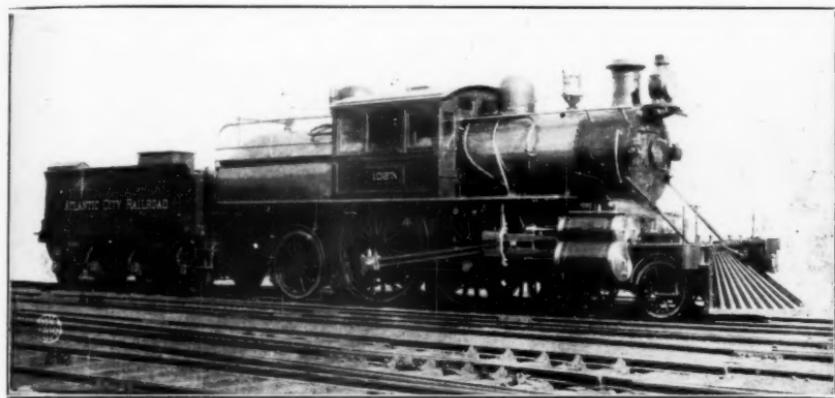
In 1892, the Baldwin Locomotive Works built a group of 2-4-2 type locomotives for the Philadelphia and Reading Railway. This was a high-speed design, with a Wootten boiler, Vauclain compound cylinders, and driving wheels 78 inches in diameter. The firebox was placed back of the driving wheels and over the trailers. These locomotives were

followed, in 1893, by a soft coal burner with the same wheel arrangement, named COLUMBIA. In this design the firebox was placed above the frames, which were depressed behind the rear driving pedestals so that sufficient furnace depth could be obtained without raising the boiler center to what would then have been considered an excessive height above the rails. The driving wheels were 84 $\frac{1}{4}$ inches in diameter, with centers of cast steel. This locomotive was presented as superior, for high speed service, to the large 4-4-0 type locomotives which were then in operation on several eastern roads—notably the New York Central and the Baltimore and Ohio. The COLUMBIA, however, had a smaller boiler than the big eight-wheelers; and while it did some fast running in experimental service, its design was not perpetuated. It pointed the way, however, toward subsequent locomotive development.

Previous to the building of these 2-4-2 type locomotives, there were in service two other locomotives of rather unusual design to which brief reference should be made. One was a locomotive on the New York, Providence and Boston Railroad, originally built as a 4-4-0, but having a weight on drivers which was considered too heavy for the bridges. Accordingly a pair of trailing wheels was placed under the extreme rear end, converting the locomotive to a 4-4-2. The other locomotive was the A. G. DARWIN, built by the Hinkley Locomotive Company in 1888 to the designs of Geo. S. Strong. The boiler had two cylindrical corrugated fireboxes, and as its over-all length was too great to be carried on a 4-4-0 wheel arrangement, a pair of trailing wheels was applied to support the over-hang. The locomotive was thus designed as a 4-4-2, and that wheel arrangement was used in order to accommodate the long boiler. The main rods were connected to the first pair of drivers, as in a 4-4-0 type locomotive. This, the writer believes, was the first 4-4-2 type to be built new in this country.

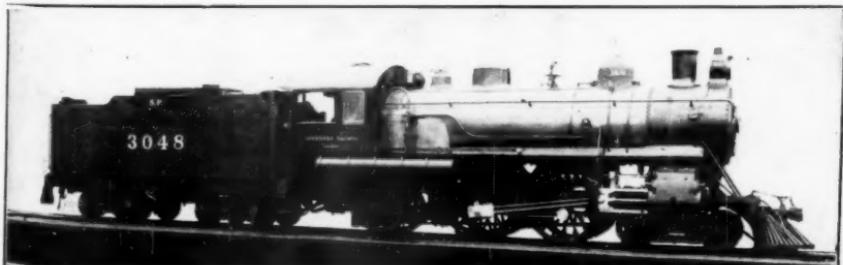
The A. G. DARWIN was followed, in 1889, by a locomotive of practically the same design, built by the Schenectady Locomotive Works for the Atchison, Topeka & Santa Fe Ry. After a short period of service, however, it was rebuilt as a 4-4-0 type with a boiler of conventional design. The A. G. DARWIN was subsequently converted into a four-cylinder balanced compound, but apparently it was used but little after being rebuilt.

The first locomotives to which the name Atlantic type was applied, were built by the Baldwin Locomotive Works for the Atlantic Coast Line late in 1894. The standard passenger locomotive on the Coast Line at that time was a 4-4-0 type with 18 x 24-inch cylinders and driving wheels 63 inches in diameter. The boiler had a deep firebox suitable for burning wood or soft coal, and carried a steam pressure of 130 pounds. The road was in need of additional power and required a locomotive capable of hauling a ten-car train up a grade of 32 feet per mile at a sustained speed of 40 miles an hour. It was desired to use only two pairs of driving wheels; but with a weight limitation of approximately 32,000 pounds per pair, the necessary steaming capacity could not be obtained in a locomotive of the 4-4-0 type. Mr. J. R. Kenly,



—Courtesy of Baldwin Locomotive Works.

A. C. R. #1027—Baldwin 1896. 13x22x26" 84 $\frac{1}{4}$ ".



—Courtesy of Baldwin Locomotive Works.

S. P. #3048. Baldwin 1896. 20x28" 81".

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General Manager of the road, who cooperated with the Baldwin Locomotive Works in designing the new locomotives, was averse to using the 4-6-0 type in order to secure the required boiler power.

The problem was solved by lengthening the 2-4-2 type, as represented by the locomotive COLUMBIA, and applying a four-wheeled leading truck, the resulting locomotive being practically a 4-6-0 in which the rear drivers were replaced by a pair of trailing wheels of reduced diameter. The firebox, while over the frames and back of the rear driving pedestals, was between the wheels and therefore was not "wide." The dimensions of the new engine, as compared with those of the 4-4-0 type previously used, and a contemporary 4-6-0 type built by the Schenectady Locomotive Works for the Michigan Central Railroad, were as follows:—

	A. C. L. 4-4-0	A. C. L. 4-4-2	M. C. R. R. 4-6-0
Cylinders	18" x 24"	19" x 24"	19" x 24"
Drivers, diameter	63"	72"	68"
Steam pressure, lb.	130	180	180
Grate area, sq. ft.	17.0	26.1	27.3
Heating surface, sq. ft.	1457	2047	2050
Weight on drivers, lb.	58,700	73,000	99,000
Weight, total engine, lb.	92,800	129,800	132,000
Tractive force, lb.	13,700	18,400	19,500

Comparing the 4-4-2 and 4-6-0 type locomotives, it is seen that the total weights and the boiler dimensions were closely similar. The 4-6-0, with smaller drivers, developed a somewhat higher starting tractive force than the 4-4-2. It also had a higher ratio of adhesion, reducing the tendency to slip; but this advantage was evident only at slow speeds. The Coast Line locomotives met their guarantee successfully; and the road subsequently bought others, of the same design, for its fast passenger service.

During the year 1895, the Baldwin Works built locomotives of the Atlantic type for the Concord & Montreal, the Missouri, Kansas & Texas, and the Georgia Railroad. These were all similar to the Atlantic Coast Line engines, in that they were soft-coal burners with narrow fireboxes; and they all had single expansion cylinders with slide valves. They were followed, in 1896, by some of the most notable Atlantic type locomotives ever built. All were Baldwin engines, and they were constructed for the following roads:—

Two for the Philadelphia & Reading (Atlantic City R. R.).

Two for the Central R. R. of New Jersey.

Two for the Chicago, Milwaukee & St. Paul Ry.

Five for the Lehigh Valley R. R.

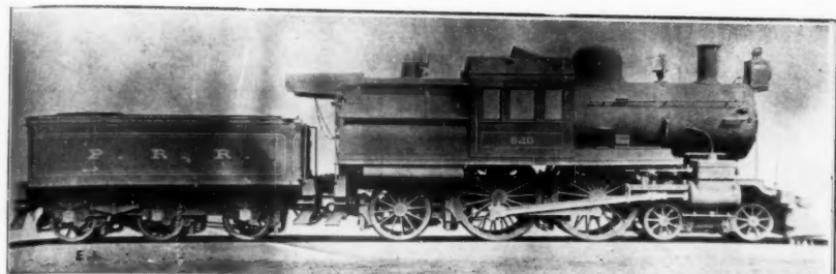
With the exception of the Milwaukee locomotives, these were all hard coal burners with wide fireboxes and central cabs. They were built to meet unusual service conditions, and all achieved noteworthy success in handling high-speed trains. We can, therefore, devote some space to describing the locomotives and the service rendered by them.

The two Atlantic City locomotives were built under a guarantee to handle an eight-car train between Camden and Atlantic City, $55\frac{1}{2}$ miles, in 60 minutes, or a six-car train in 50 minutes. The running time between these two points was being gradually reduced, and there was great rivalry between the two companies—the Reading and the Pennsylvania—which provided the service. The locomotives ordered by the Reading were lettered Atlantic City R. R., and were given the road numbers 1026 and 1027; they had Wootten boilers with combustion chambers, Vauclain compound cylinders, and driving wheels $84\frac{1}{4}$ inches in diameter. Clearance limits on the New Jersey run were somewhat more liberal than on certain other parts of the Reading System, and accordingly two stacks were furnished, one of them twelve inches taller than the other. As clearly shown by illustrations of these engines, there was a marked difference in their appearance, depending upon which stack was being used. Subsequent reference will be made to the work done by these locomotives, but it should be noted here that they were remarkably successful on the Atlantic City run.

The two locomotives for the Central Railroad of New Jersey were given the road numbers 456 and 457; they were practically duplicates of the Atlantic City locomotives, except that No. 456 had single expansion cylinders. They were placed in fast passenger service between Jersey City and Philadelphia, operating over the joint line of the New Jersey Central and the Philadelphia & Reading.

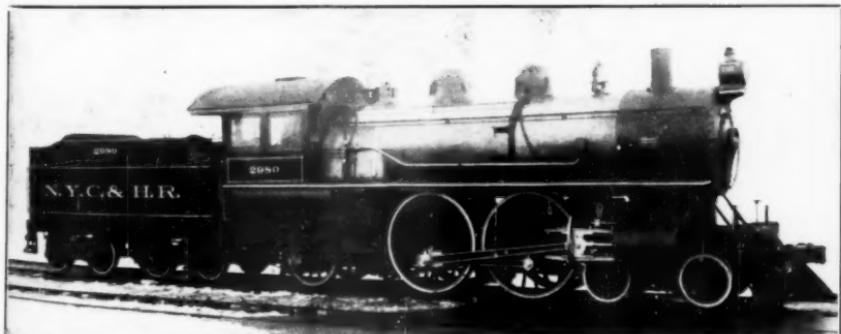
The five locomotives for the Lehigh Valley R. R., numbers 664 to 668 inclusive, were specially designed to haul the "Black Diamond Express," which had been placed in service on May 18, 1896. They used a modified design of Wootten boiler, with a straight back tube sheet and no combustion chamber. The driving wheel diameter was 76 inches, the smaller wheel better fitting them for work on the Lehigh Valley; certain sections of which are far from level. The cylinders were single expansion, with slide valves operated by Stephenson link motion. These locomotives made an enviable record for speed and punctuality. As an example, one of them, on April 12, 1897, hauling a five-car train weighing 205 tons, ran from Alpine to Geneva Junction, 44 miles, at an average speed of 80 miles an hour.

The two Milwaukee locomotives, road numbers 838 and 839, were practically enlargements of the Atlantic Coast Line design. The boilers had narrow fireboxes; the wheel diameter was increased to 78 inches, and the Vauclain compound cylinders were applied. These locomotives were intended for high speed service between Chicago and Milwaukee, where the line is comparatively level, but where operating conditions required an engine capable of developing about 1600 horsepower. They soon proved capable of meeting their guarantee; and on July 3, 1896, engine 839, enroute from Chicago to Milwaukee, covered 74 miles in 82 minutes, including four slow-downs and one stop, and hauling a train which weighed 1,200,000 pounds, including engine and tender. This run attracted considerable attention; and due to the success of these two locomotives, the Milwaukee Road subsequently purchased others of



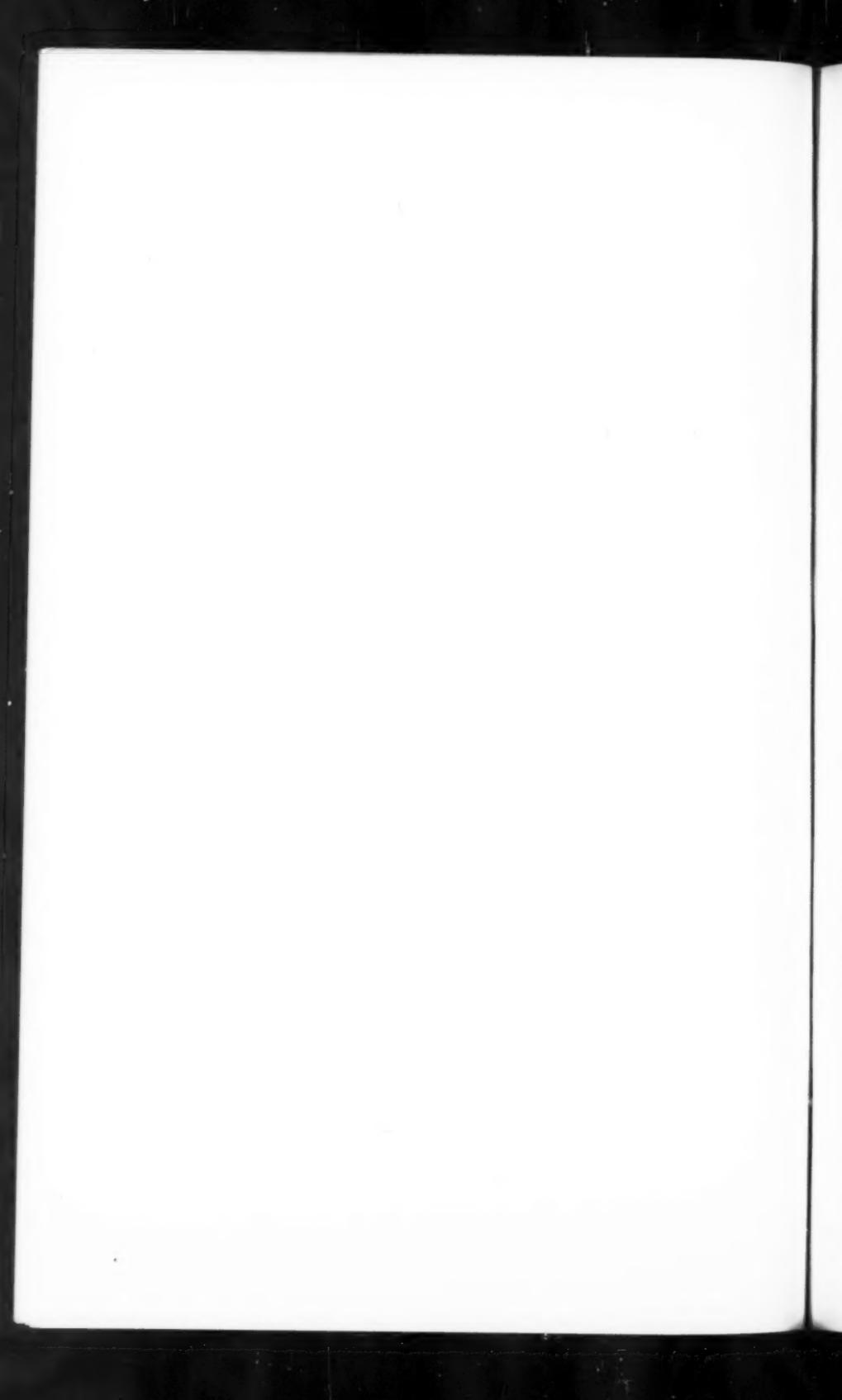
—Courtesy of C. B. Chaney.

P. R. R. #820. Juniata 1899. Class E-1. 20 $\frac{1}{2}$ x 26" 80".



—Courtesy of American Locomotive Co.

N. Y. C. & H. R. #2980. Schenectady 1901. 21x26" 79".



similar design, and followed them with several groups of heavier Atlantics having wide fireboxes and driving wheels seven feet in diameter.

All the Atlantic type locomotives in service up to the year 1899 had been built by the Baldwin Locomotive Works, which was featuring the type as the most efficient and desirable for high-speed passenger service. The most conspicuous work, as far as speed was concerned, was being done on the Reading's Atlantic City line, where, in 1897, the time of the fastest train had been cut to 50 minutes for $55\frac{1}{2}$ miles. The total time between Philadelphia and Atlantic City, including the ferry across the Delaware River to Camden, New Jersey, was 60 minutes. During July and August, 1897, engine 1027 hauled the train every week day without a single late arrival at the terminus, maintaining an average start-to-stop speed for the two months, of 69 miles an hour. This is an old and well-known story, but no account of the work done by the Atlantic type can afford to pass it by.

In 1898, the Pennsylvania R. R., which had a shorter ferry but a longer rail line (58.3 miles) put on a 60-minute train in an effort to meet the Reading's schedule. The Pennsylvania hauled their train with locomotives of class D16 a (4-4-0 type), which had 80-inch drivers, and burned hard coal in long, narrow fireboxes having a grate area of 33.2 square feet. Under the most favorable conditions these engines could make the time, but they could not do it with the regularity of the Reading locomotives, which had a grate area of 76 square feet. The Pennsylvania accordingly designed their first Atlantic type, known as Class E1, and built three locomotives at the Juniata Shops, Altoona, early in 1899. These engines, which were given the road numbers 698, 700 and 820, were among the most notable of their time, and were the forerunners of a large number of Atlantics which were subsequently widely distributed over the Pennsylvania System.

Class E1 was notable, not only because of its weight and capacity, but also because of the unusual design of some of its details. As far as the writer is aware, these were the first locomotives to carry more than 100,000 pounds on two pairs of drivers. The boiler had a wide firebox with a combustion chamber, the grate measuring eight feet in length by eight feet six inches in width. In accordance with Pennsylvania practice the firebox was built like a Belpaire, with a flat roof and a flat crown sheet. The front frame sections were in the form of slabs, and the cylinders were cast separate from the saddle; there being three castings in the cylinder group. The cab was placed ahead of the firebox. The entire design was worked out with particular attention to small details, and it included various interesting features, among them a speaking-tube connection between the engineman's cab and the firing deck at the rear. The tender was carried on three pairs of wheels, all of which were held in rigid pedestals.

On the Atlantic City run, these locomotives proved their ability to do all that was expected of them. They steamed very freely, and maintained an average speed of 75 miles an hour between Hammonton and

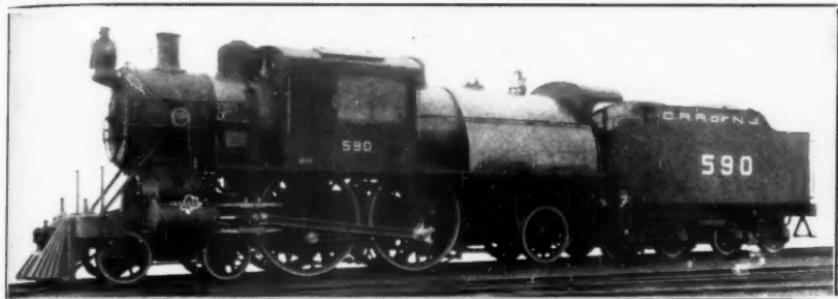
Drawbridge, a distance of 27.4 miles, with 300 tons behind the tender. In this service they burned lump anthracite. They were tried on various divisions of the System, and with different kinds of fuel; and while they gave excellent results, it was decided to modify the design in such a way that the cab could be placed at the rear, thus keeping the men together. The result was the building, in 1900, of engine 269, which was first given the classification E2 and later E1a. The width of the grate was reduced to 66", cutting down the grate area to 50.8 square feet; and a radial-stay firebox was substituted for the Belpaire design, thus reducing the weight at the rear to some extent. The three-piece cylinder construction, as used in Class E1, was retained in engine 269. Instead of holding the trailing axle rigidly in the frames, as was done in Class E1 and in the Baldwin Atlantics, engine 269 had a radial trailing truck which was placed under the extreme rear end of the locomotive and was equalized with the drivers, on each side, by two short beams and a half-elliptic spring. This unusual arrangement did not prove entirely satisfactory, and eventually it was replaced, on many of the Pennsylvania's Atlantics, by a single long beam.

In 1901 the Pennsylvania brought out Class E2—a modification of engine 269, having the same size cylinders and driving wheels, but with a somewhat larger boiler in which the pressure carried was 205 pounds as compared to 185 in the earlier locomotive. For service on the Pittsburgh Division, where heavy grades were encountered, this same general design was built with larger cylinders—22 x 26 inches as compared to 20½ x 26—and was designated Class E3. These two classes, E2 and E3, constituted the base designs for several modifications which appeared later. The principal characteristics of these several classes are given in the following table, which includes Classes E1 and E1a (engine 269) :-

Class	E 1	E 1 a	E 2	E 2 a	E 2 d	E 3	E 3 a	E 3 d
Date	1899	1900	1901	1902	1906	1901	1902	1906
Boiler, type	Belpaire Wootten	Radial stay		Belpaire		Radial stay		Belpaire
Valves		Slide		Piston		Slide		Piston
Valve Gear		Stephenson		Walschaerts		Stephenson		Walschaerts
Cylinders		20½"x26"				22"x26"		
Drivers				80"				
Steam Pressure	185				205			
Grate Area	68	50.8			55.5			
Heating Surface	2320	2429			2640			

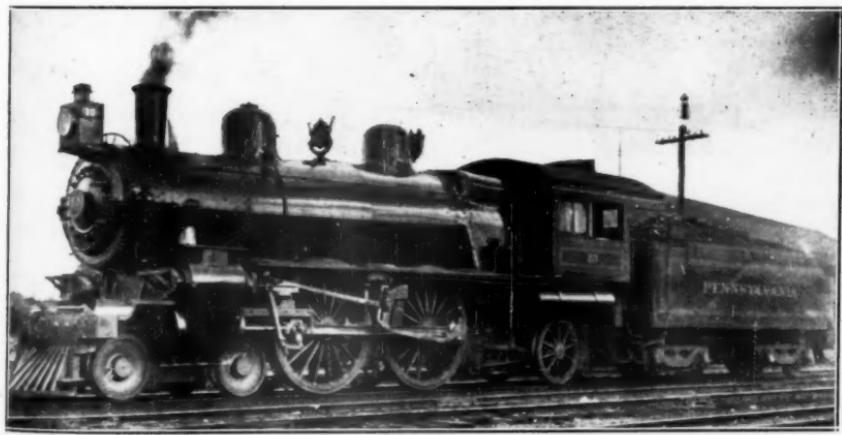
Several other classes, generally similar to the above but differing in certain details, were built for the Lines West of Pittsburgh.

Reverting now to 1899, we note that Baldwin built two large Atlantic type locomotives, road numbers 1591 and 1592, for the Chicago, Burlington & Quincy R. R. These locomotives had straight-top boilers with narrow fireboxes; Vauclain compound cylinders were applied, and the driving wheels were 84¼ inches in diameter. Engine 1592 was first shopped for general repairs in April, 1900, after making 127,478 miles;



—Courtesy of American Locomotive Co.

C. N. J. #590. Brooks 1901. 20½x26" 85".



—Courtesy of C. B. Chaney.

P. R. R. #20. E-3rd. Juniata, May 1908. 22x26" 80".

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and when she was placed back in service, engine 1591 was given general repairs, after making 160,806 miles. Both locomotives were operated between Chicago and Burlington, Iowa, and were credited with maximum monthly mileages exceeding 12,000.

In the meantime, other builders were producing Atlantic type locomotives. At the Convention of the Master Mechanics Association, held at Saratoga Springs, New York, in June, 1900, the Schenectady Locomotive Works exhibited a new fast passenger locomotive built for the Chicago & North Western Railway. It was a 4-4-2 type designated by the Railway Company as Class D. This locomotive had a straight-top boiler with tubes 16 feet long, and a deep firebox, 65 $\frac{1}{4}$ inches wide, placed back of the drivers. The distance between the centers of the rear (main) drivers and the trailing wheels was 108 inches, and the trailing axle had outside journals with boxes working in pedestals that were secured to outside, auxiliary frames. Piston valves 11 inches in diameter controlled the steam distribution, and the steam chest centers were placed closer together than the cylinder centers, permitting a direct arrangement of Stephenson link motion to be used. The design throughout represented careful study in all details, and attracted considerable attention and favorable comment. The superiority of the Northwestern locomotives for high speed service was evident when they were compared with the heaviest 4-4-0 type locomotives then being built for similar work. Using a Schenectady locomotive of the 4-4-0 type built for the Big Four, such a comparison would be as follows:

	C. & N. W. 4-4-2	Big Four 4-4-0
Cylinders	20"x26"	20"x26"
Cylinder Volume, cu. ft.	9.5	9.5
Drivers, diam.	80"	78"
Steam pressure, lb.	200	190
Grate area, sq. ft.	46.3	30.7
Heating surface, sq. ft.	3016	2161
Weight on drivers, lb.	91,000	86,000
Weight, total engine, lb.	158,000	130,500
Traction force, lb.	22,100	21,530
Sq. ft. grate area per cu. ft. cylinder vol.	4.87	3.23
Sq. ft. heating surface per cu. ft. cylinder vol.	317	227

In proportion to the cylinder volume, which was the same in both engines, the North Western locomotive had 50 per cent more grate area and 40 per cent more heating surface than the Big Four.

The Chicago & Northwestern locomotives were followed, early in 1901, by a group of larger Atlantics which were built at Schenectady for the New York Central & Hudson River R. R. In its general features, this design was similar to that of the North Western locomotives; but the cylinder diameter was increased from 20 to 21 inches, and the boiler dimensions were enlarged throughout. The total heating surface was 3505 square feet, which was considered exceptionally large for a passenger locomotive. A so-called "traction increaser" was applied; the normal weight on drivers was 95,000 pounds, but this could be in-

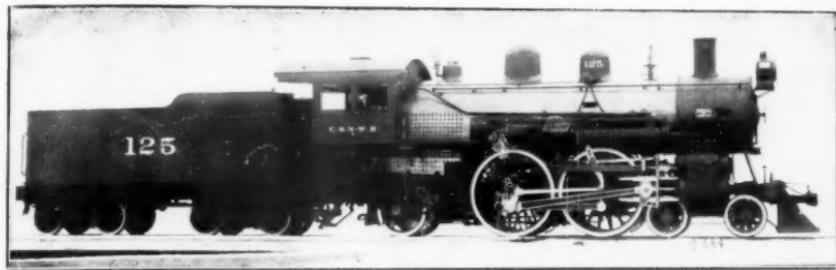
creased, when starting, to 104,800 pounds, by shifting the fulcrum points of the equalizing beams between the rear driving and trailing wheels. This was accomplished by means of an air cylinder on each side. The arrangement, in principle, was similar to that used on Baldwin locomotive No. 5000, built in 1880, a 4-2-2 type for the Philadelphia & Reading R. R., which had subsequently been sold to Lovett Eames and used by him to exploit his vacuum brake. The New York Central locomotives did fine work, and soon displaced the big eight-wheelers on important runs.

The Brooks Locomotive Works also started building 4-4-2 type locomotives, designating them as "Chautauqua type." In the Brooks design, a two-wheeled radial truck was used instead of the rigid trailers in the Baldwin and Schenectady locomotives. The truck was controlled by centering springs. These Brooks engines were conspicuous because of the extent to which cast steel details were applied. Notable among them were a number built for the Central Railroad of New Jersey, and used in high speed service between Jersey City and Philadelphia. These were hard-coal burners, with modified Wootten boilers, central cabs and driving wheels 85 inches in diameter.

When the Louisiana Purchase Exposition was held at St. Louis in 1904, the Atlantic type was at the height of its popularity. Nine Atlantics, turned out by domestic builders, were on exhibition, and their principal dimensions are presented in the accompanying table. Included were two "balanced compounds," one built by the Baldwin Locomotive Works for the Atchison, Topeka & Santa Fe Railway, and the other by the American Locomotive Company for the New York Central. In both designs the high-pressure cylinders were placed between the frames, and their pistons were connected to a crank axle on the leading pair of drivers; while the low-pressure cylinders were placed outside in the usual location. The Baldwin engine had all four cylinders in line under the smokebox, with the four main rods connected to the first pair of drivers; while in the "Aleo" engine the high-pressure cylinders were forward of the low-pressure, and the outside main rods were connected to the second pair of drivers. In both cases, a conventional arrangement of Stephenson link motion was applied.

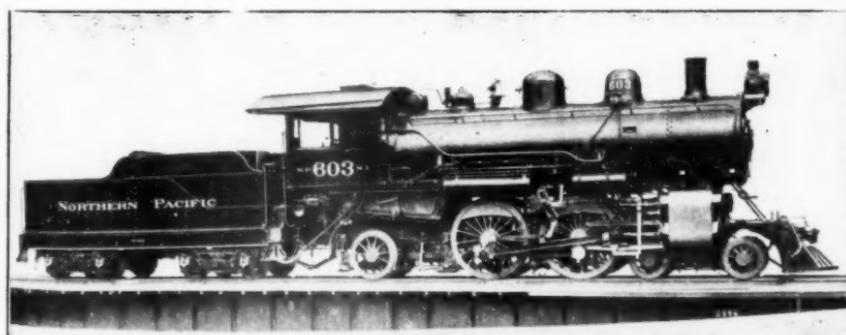
The Baltimore & Ohio locomotive listed in the table was of the same dimensions as the Pennsylvania's class E 3 a. It was designed under the supervision of F. D. Cassanave, Superintendent of Motive Power, who had formerly been Chief of Motive Power of the Pennsylvania. The Chicago & Alton locomotive was designed in accordance with the standards of the Associated Lines, which included the Union Pacific and the Southern Pacific Systems.

Baldwin balanced compound locomotives were built in considerable numbers, especially for the Santa Fe System, and to a less extent for the Burlington and other roads. The Associated Lines also received a number of balanced compounds, which were assigned to the Union Pacific System. As the wheel base of these locomotives was restricted, the crank axle was placed on the second pair of drivers, and the inside main



—Courtesy of American Locomotive Co.

C. & N. W. #125. Schenectady 1908. 20x26" 81".



—Courtesy of Baldwin Locomotive Works.

N. P. #603. Baldwin 1909. 21x26" 73".

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rods were formed with a loop, or bifurcation, which spanned the first driving axle. It is hardly necessary to say that this arrangement was unsuccessful.

Before dismissing the compound Atlantics, reference should be made to a group of locomotives built by Baldwin for the Southern Pacific System in 1903. These were oil-burners with Vauclain compound cylinders, Vanderbilt cylindrical fireboxes and driving wheels 79 inches in diameter. To properly support the boiler and distribute the weight, the driving wheels were set farther back than usual and the main rods were connected to the first pair. The Vanderbilt firebox was short-lived, as the metal in the crown thinned down due to the intense heat, with consequent danger of collapse; and all these locomotives have long since been scrapped.

Reference has been made to the fact that in 1895 the Baldwin Locomotive Works built an Atlantic type locomotive for the Concord & Montreal R. R. This engine was the forerunner of several groups of Atlantic type locomotives which were used in fast passenger service on the New England roads. The Boston & Albany used engines similar to those built for the New York Central, which have been previously described. The Boston & Maine Atlantics were built by the American Locomotive Co. These were of Schenectady design and were of medium size, with 19x28 inch cylinders and 78-inch drivers. In 1907 the New Haven received, from the Schenectady plant of the American Locomotive Company, a group of 12 Atlantics which were exceptionally handsome engines because of their trim lines and neat arrangement of piping and other details. As built they had 21x26 inch cylinders with slide valves, and were fitted with Walschaerts valve gear. The driving wheel diameter was 79 inches. These locomotives were subsequently superheated; and it is the writer's understanding that when, for any reason, the "Comet" is temporarily taken off its Boston-Providence run, a conventional train hauled by one of the old Atlantics is substituted, and the time is made without difficulty.

It has been stated that the Atlantic type reached the height of its popularity at the time of the St. Louis Exposition. Shortly thereafter, it became evident that it was on the decline. Increasing train loads, especially on the western lines, were necessitating the use of locomotives with three pairs of drivers; and the Pacific (4-6-2) type was meeting requirements successfully. In certain eastern localities, however, the Atlantic type was fully holding its own. This was particularly true on the Philadelphia & Reading, where exceptionally fast schedules were maintained on the New York Division and also on the Camden-Atlantic City run. For this service there were built at the Reading Shops, in 1906, ten locomotives (Class P 5, road numbers 340-349), which were the heaviest Atlantics in service at that time, and are among the most notable of the type ever designed. As built, they had 21x27-inch cylinders and driving wheels 86 inches in diameter, and carried a steam pressure of 230 pounds. The boiler was of the Wootten type, designed for burning hard coal, with a grate area of 94.5 square feet and 3270

square feet of heating surface. Slide valves, operated by Stephenson link motion, were applied. These locomotives were subsequently rebuilt with piston valves, Walschaerts gear, and superheaters; and in five of them, the 86-inch drivers were replaced by wheels 80 inches in diameter.

The Reading also built, during the years 1909 to 1912, three Atlantic type locomotives, each of which had three single-expansion cylinders. All three cylinders were of the same dimensions and were placed in line under the smoke-box, the piston of the inside cylinders being connected to the first pair of drivers, which had a cranked axle. The three cranks were placed 120 degrees apart, and there was a separate piston valve for each cylinder; the two outside valves being controlled by Walschaerts gear, and the inside valve by a Joy gear, operated from the connecting rod. The most notable of these locomotives was No. 344, the design of which was based directly on that Class P 5, and which was the first Reading locomotive to have a Schmidt superheater. The principal dimensions of these three locomotives were as follows:

	303	300	344
Date built	1909	1911	1912
Cylinders (3)	18½" x 24"	19" x 24"	19" x 24"
Drivers, diam.	80"	80"	80"
Steam pressure, lb.	225	240	230
Grate area, sq. ft.	90	90	94.5
Heating surface, sq. ft.	2846	3345	2459
Superheating surface, sq. ft.			373
Weight on drivers, lb.	106,150	108,000	128,300
Weight, total engine, lb.	205,400	208,000	233,200
Tractive force, lb.	29,450	33,140	31,760

Engines 300 and 303 were fitted with a design of superheater as patented by Howard D. Taylor, who was then Superintendent of Motive Power. This consisted of a chamber in the front part of the boiler, immediately back of the smokebox and separated from the evaporative section by a second tube sheet. The steam flowing to the cylinders was guided by baffle plates, and was compelled to take a circuitous course through the chamber. Only a moderate degree of superheat was obtained, and the superheating surfaces are included in the heating surface figures given in the preceding table.

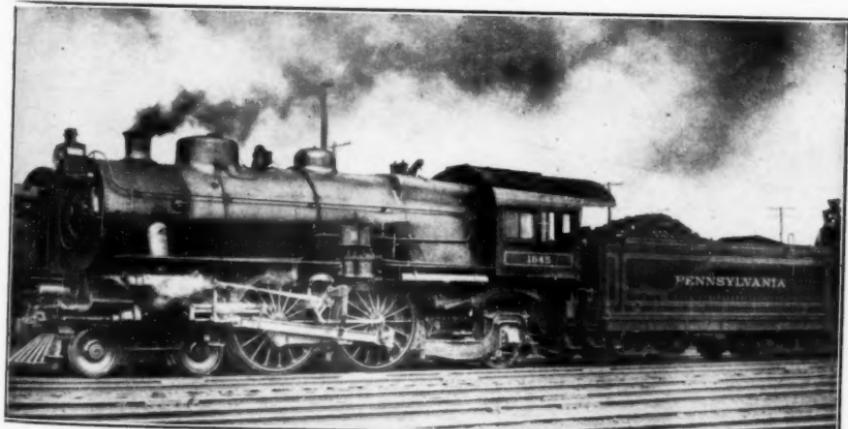
These locomotives—especially the 344—proved very speedy and did fine work; but after several years of service the crank axles began to show signs of ultimate failure, and they were rebuilt as two-cylinder locomotives. One reason for this was, that under war conditions as then existing, it would have been difficult and exceedingly expensive to replace the original axles.

Another road which was working on the further development of the Atlantic type, was the Pennsylvania. In 1910 there was built at Altoona a 4-4-2 type locomotive of exceptional capacity, which was designated as Class E6. It was first given the road number 5075, and this was subsequently changed to 1067. The cylinders and driving wheels of this engine were of the same dimensions as those of the E3 group, and the



—Courtesy of C. B. Chaney.

P. & R. #303. Reading Shops 1909. (3) 18½x24" 80".



—Courtesy of C. B. Chaney.

P. R. R. #1645. E-6s Juniata, Mar. 1914. 23½x26" 80".

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same steam pressure was carried. The grate area was also the same, but the boiler diameter was increased from 65 $\frac{5}{8}$ to 76 $\frac{3}{4}$ inches, and the total heating surface from 2640 to 3582 square feet. The firebox had a combustion chamber extending forward into the boiler barrel, and the firebox heating surface, as compared to Class E3a, was increased from 166 to 218 square feet. The new locomotive carried 133,300 pounds on drivers, which was exceptionally high for a four-coupled design at that time.

Class E6 gave promising results from the start, showing high hauling and speed capacities. It was tested against three Pacific (4-6-2) type locomotives of the K2 group between Fort Wayne and Valparaiso, Indiana, hauling trains of from 9 to 15 cars. One of the Pacific type locomotives was fitted with a superheater, and developed greater power and speed than the 5075, but the latter locomotive proved the equal of the other two Pacifies, which used saturated steam. These road tests, together with others made on the stationary plant at Altoona, showed that Class E6 was capable of developing a maximum of 1400 draw-bar horsepower.

In 1912 two additional Atlantic type locomotives, of the same general dimensions as engine 5075 except that superheaters were applied, were built at Altoona. One of these (road number 89) had piston valves, while the other (number 1092) had rotary valves. Engine 89 was tested on the Altoona plant, and developed approximately 30 per cent greater capacity than engine 5075; while the reduction in coal consumed per horsepower-hour reached a maximum of 46 per cent. A study of the tests indicated that the performance of the locomotive would be improved by using larger cylinders and somewhat longer tubes. Accordingly the design was revised by increasing the cylinder diameter from 22 to 23 $\frac{1}{2}$ inches and the tube length from 13 feet 8 $\frac{5}{8}$ inches to 15 feet; and 80 locomotives were built according to this revision, in 1914. The three earlier locomotives were rebuilt to conform to the changes noted, so that there were altogether 83 locomotives of Class E6s in service on the System.

In revising the design, the reciprocating parts were materially lightened, a screw reverse was applied in place of the hand lever previously used, and the equalizing system was broken between the two pairs of driving wheels, the leading drivers being equalized with the engine truck. The front of the locomotive is supported on a single beam placed on the center line, and having its fulcrum just back of the cylinders. The forward end of the beam rests on a suitable bearing mounted on the truck bolster. This arrangement was adopted so that a proper distribution of weight between the leading truck and the drivers can be more easily maintained.

The rear truck of Class E6s is of the so-called K W type, in which the truck frame serves as the rear equalizer and supports the main frames through sliding bearings. In the original design the truck frame was built up, but in the design of 1914 it was made of cast steel, in one piece.

Unquestionably, Class E6s has done remarkably fine work on the Pennsylvania System. These locomotives are no longer equal to the through schedules now in effect on the main line; but they are still used in lighter work, and in high speed service on the Pennsylvania-Reading Seashore Lines. They have successfully handled the Detroit-Chicago trains on a schedule which allows 115 minutes for the 141 miles between Fort Wayne and Englewood; and the run made by engine 460 with the Lindbergh special on June 11, 1927, was an outstanding achievement. The 216 miles from Washington to Manhattan Transfer were made in 175 minutes, including one stop. This represented an average of 74 miles an hour, or 75.8 miles an hour excluding the stop. The 66.6 miles between Holmesburg Junction and South Street, Newark, were covered in 47 minutes, at the rate of 85 miles an hour.

The only Atlantic type locomotives yet to be described are the famous "Hiawatha" engines used on the Chicago, Milwaukee, St. Paul and Pacific Railroad. The first two of these locomotives were built by the American Locomotive Company in 1935, and were specially designed to haul a six-car train weighing 340 tons from Chicago to St. Paul, a distance of 410 miles, in 390 minutes. Deducting the time for five intermediate stops, this meant an average running speed of 66 miles an hour. The locomotives proved their ability to considerably exceed their guarantee, and two additional units of similar design were subsequently built.

The Hiawatha locomotives have drivers 84 inches in diameter, and the cylinder dimensions are 19 x 28 inches. Oil is used for fuel; the pressure carried is 300 pounds, and the boiler shell plates are of silicon-manganese steel. The rated tractive force is 30,700 pounds. For a four-coupled locomotive, the wheel-base is long (37'7"), and the drivers are placed well back, with the main rods connected to the first pair. The rods are of the tandem type, and of light section, the material being high-tensile nickel steel. The machinery throughout is as light as is consistent with the required strength. The backbone of the locomotive is a cast steel bed, with frames, cylinders, crossties, main air reservoir, and various other parts, cast integral. These, we believe, are the only 4-4-2 type locomotives so constructed.

The Hiawatha locomotives are stream-lined, the upper portion being shrouded, with a partial skirting below the running boards. The color scheme includes black, gray, orange, yellow, maroon, and brown, with lettering in gold leaf; and the effect is extremely striking. A vestibuled cab, with side doors, gives complete protection to the engine crew.

These locomotives promptly proved their ability to maintain the difficult schedule of the Hiawatha, and to run at maximum speeds in excess of 100 miles an hour. But the train proved so popular that it was impossible to keep it down to six cars; and while the locomotives made time with far heavier loads than they were designed to haul, it eventually became necessary to use 4-6-4 type engines on days when travel was heavy. As is well known, the Hiawatha has partly "gone Diesel" and the Atlantic type locomotives have been assigned to lighter work. But there are few locomotives that can boast of greater success in meeting the particular requirements for which they were designed.

The success achieved by the Atlantic type in handling high speed trains of moderate weight was beyond question; but the 4-4-2 was limited in starting capacity, and the introduction of steel passenger equipment and heavier train loads soon forced it into second place. The type lacked flexibility, in that it was not well suited for service other than that for which it was specially designed; nor could it be economically rebuilt to increase its utility. With large driving wheels, and only about 55% of the total engine weight on drivers, it was handicapped in anything but high speed service.

It is interesting, in this connection, to compare the Class E6s locomotives of the Pennsylvania with the Class G5s (4-6-0 type) engines on the same road. Such a comparison is as follows:—

	E 6 s	G 5 s
Cylinders	23½" x 26"	24" x 28"
Drivers, diam.	80"	68"
Boiler, diam.	76¾"	76¾"
Steam pressure, lb.	205	205
Grate area, sq. ft.	55.2	55.2
Water heating surface, sq. ft.	2896	2855
Superheating surface, sq. ft.	613	613
Weight on drivers, lb.	136,000	178,000
Weight, total engine, lb.	243,600	237,000
Tractive force, lb.	31,275	41,330
Ratio of adhesion	4.35	4.31

These two locomotives are of practically the same total weight, with almost the same adhesion ratios, and boilers of closely similar dimensions; but Class G5s develops 32 per cent greater starting tractive force than Class E6s, and carries less weight on each pair of drivers. It could not do the work of Class E6s in high speed service; but it is an excellent all around engine for local or branch line service, and the writer has ridden behind one of these locomotives at a speed of 72 miles an hour. While the Class E6s locomotives are still in existence, the great majority of the Atlantics built for railroads in the United States have been scrapped; and on lines where they are still to be found, it is rather sad to see them hauling light local trains, or perhaps serving the Maintenance of Way Department by handling ballast or construction trains. In such service they cannot haul loads at all in proportion to their total weight, nor can they be run at the speeds for which they were designed.

But the Atlantic type met a definite need in the development of railroad passenger travel, and the success with which that need was met, stamps it as one of the most notable types ever used on the railroads of this country.

Atlantic Type Locomotives Exhibited at St. Louis, 1904

Road	Builder	Cylinders	Drivers diam.	Steam pres. lb.	Grate area sq. ft.	Total Heat Surface sq. ft.	Weight on Drivers, lb.	Weight total Engine, lb.	Tractive Force, lb.
Norfolk & Western	Baldwin	19"x28"	79"	200	45.1	2879	80,930	169,090	20,500
Vandalia Line	American	21"x26"	79"	200	50.2	3100	108,000	184,000	23,200
Chicago & Alton	Baldwin	20"x28"	81"	200	49.5	2655	103,600	183,700	22,200
Illinois Central	Rogers	20"x28"	79"	200	50.7	3232	102,000	188,000	22,700
Big Four	American	20½"x26"	79"	200	44.8	3196	100,000	184,000	22,100
Baltimore & Ohio	American	22"x26"	80"	205	55.5	2640	109,500	180,000	25,800
Chi. Burlington & Q.†	Baldwin	15" x26" 25"	84½"	210	44.1	3003	95,880	183,080	17,150 *
A. T. & Santa Fe‡	Baldwin	15" 25"	x26"	79"	220	49.5	3206	101,420	193,760
New York Central ‡	American	15½"x26"	79"	220	50.3	3446	110,000	200,000	20,500 *

† Vauclain Compound Cylinders.
 ‡ Balanced Compound Cylinders.
 * Working Compound.

Andrews' Raid

A BALLAD

By CARRIE WEAVER SMITH

April Eighteen Sixty-Two.
Soldiers in gray—soldiers in blue
Fightin' like hell-eats, any old way,
Brothers and cousins in blue and gray,
South against North in the great rebellion,
Each side as wild as a Texas stallion.
Nothing too daring—nothing too risky,
For they had courage—and Bourbon whiskey.

The dead of Shiloh lay in the thickets;
Grant and Buell posted their pickets
And hoisted their flag on the Church in the wood;
And Albert Sidney Johnston's blood
Washed away in the pouring rain
Along with four thousand Confederates slain,
While with the skill of a mountain ranger
Beauregard led the rest out of danger.

Both sides had learned how the other could fight—
Both sides felt that their cause was right.
Yanks willing to die for the Red, White, and Blue
And Johnny Reb as courageous and true.

Families divided—friendships broken—
Bitter words written—bitter words spoken.
When brother fights brother in a war
There's something real they're fighting for.

An open field—a charging line—
A bugle call—there is something fine
In the courage that comes
With the beat of the drums,
The clash of sabers, the rallying shout,
The sob of defeat, the defiance in rout.
A battle fought—if battles must be—
In combat real, with gallantry.

But along with war since Time began
A devil-genius possesses Man
And makes him resort to tricks and lies
And subtleties of sneaks and spies.
Courage—tainted by deceit—
True hero, but a clever cheat;

Sets him off on a perverse course,
For mascot, the mythic Trojan horse.
Call it by any other name
Espionage is smudged with shame.

Spies had been busy, North and South.
Their weapons eyes and ears and mouth.
With these they fought, and took the chance
Of ending their war in an airy dance.

This is the story of only one spy,
Who gambled his life to win—or die.
James J. Andrews, "Confidence Man,"
With a flair for any treacherous plan.
Who he was, not any one knows;
A mystery man, so the story goes,
A man with a past, which he never told,
A man with a rabid greed for gold.

Two years before the war began
The stage coach stopped to let off this man
In Flemingsburg, Kentucky town
In the blue grass lands. Its one renown,
It was the sleepy county seat
But a village remote—and a good retreat
Where one could start all over again
With no coercion to explain.
And a man with a fist, or a pioneer
In Flemingsburg had little to fear.
There Andrews followed the painter's trade
And hoarded every cent he made,
But won the hearts of old and young
By Virginia manners, and songs he sung.

Comes April Eighteen Sixty-One
And the pioneer axe gave place to the gun.
Sumter had fallen. The South was elated.
State Conventions met and debated.
"Shall we secede?" Pulpit and Press
And Southern orators answered "Yes!"
Eleven States in Confederation
Are now united. Yet vacillation
Gripped and swayed the border states—
Kentucky—Maryland—hesitates.

Some sing a Song—and others scoff it
While the business men, with an eye to profit,
Weigh their chances in scales of Gold,
And loyalties are bought and sold.
What to the, how many are killed,
Just so their coffers are amply filled.

A war is grand pickings for financiers
And they see that one happens every few years.

Andrews, born in Virginia State,
For neither side had love—or hate.
But the Yankee side offered better pay,
So Andrews cast his lot that way,
Orated, and pled to stay in the Union
And was booted out of Southern communion.
Then he faced about. Said he had been wrong,
Lustily sang a Southern song,
Took the oath, and said that he
Was joining Morgan's Cavalry.
And all the time in Yankee pay
Salting down money every day,
Foiled suspicion with smiles and shrugs
And sold the Confederates clothes and drugs.
Soldiers in camp on the Tennessee River
Died like flies of "chills and fever."
"Send us quinine," the wires read,
"Hundreds of fighting men are dead."
Andrews, the Spy for the Union side,
Smiled when he heard how many had died,
Wired his smuggler in secret code,
Received his quinine—and off he rode
Arriving at Fort Donelson
Without a pistol or a gun,
But with the precious saving bark.
"We ran the blockade in the dark.
There is no risk I'd fail to take
For our brave Southern soldiers' sake,"
So he declared—as he took the cash,
Saluted the Flag, then made a dash
Under cover of night for the Yankee camp
With changed disguise—the motley scamp;
Saluted their flag—gave the pass word correctly
And learned that Buell would see him directly.
In the Generals' tent he made his report,
Left his penciled sketch of Donelson Fort
Counted his money—and went on again
As a typical Southern gentleman.

His courtly manners, easy grace,
Confederate loyalty, handsome face,
Cursing the Yankees on every occasion,
Extraordinary talent of persuasion,
Enthusiastic taking the oath
To serve the South by life or death,
Gave Andrews the spy complete immunity
And he was welcomed in every community.

The Yankee General "Star-gazin' Mitch"
Concocted a plan for an engine switch
And a run from Atlanta to the Tennessee line
And burn the bridges. It sounded fine
As a piece of effective strategy
To cut off Georgia from Tennessee.
General Buell approved of the plan
And suggested Andrews as the man
Most likely to carry the idea out.
"That fellow knows his way about.
He isn't afraid and he's darn smart,
Clever at lying and playing a part.
He's the man, you may remember,
Who got into Donelson last December,
Sent them drugs and drew the plan
And sold it to us. Yes, he's your man.

He knows Georgia; also he
Has taken the Oath of Loyalty
And wears a big Confederate hat.
He is courageous. But—he's a rat.
I hate this part of war—but then
War changes us all into less than men.
So pick your bunch. Make them understand
That each one is taking his life in his hand.
If they get caught they're bound to be strung
Higher than poor old Haman hung!"

Andrews met Mitchell in his tent
And they plotted and schemed till night was spent.
"You burn those bridges and tear up the track.
When you have done it, come on back,
To your store in Nashville, Tennessee,
And sell to the damned Confederacy.
We'll let you smuggle from the North
All you need to sell to the South.
When you get back from the dare-devil dash
I'll give you ten thousand dollars in cash.
It's a risky job, but that's good pay.
I'll pick your men; you pick the day."

"On Friday," said Andrews, "traffic is light.
One South-bound train. But that's all right.
I'll meet it at Kingston, where the track is double.
When we pass that freight, we pass our trouble.
There won't be a thing to stop us," he said,
"Until I report the success of the raid.
We'll skirt Chattanooga and reach Shelbyville
By midnight Friday. I'm sure we will."

Mitchell sat silent—searchingly eyed
Andrews; then suddenly, satisfied
That he could completely trust the man,
He brought out a map and told him a plan,
Which then not even Buell knew.
“I’ll take my troops and rush them through
To Huntsville—an undefended town—
And raise the flag ere the sun goes down—
Capture the railroad, and penetrate,
East and West, Alabama State.
So—when you get to Tennessee
Switch your train to the M & C
And meet me in Huntsville Friday night.
God keep you all—and speed the right.”

Andrews knew he was playing with Fate
But he reckoned the gold would compensate;
For he was in love, and he needed cash.
So he decided to make the dash.
In May, a girl from old Kentucky
Would marry him if he was lucky.

He met his men on a desolate hill
In a dead tree thicket near Shelbyville.
A dog in the distance howled a warning,
But omens were met with bravado and scorning.
Now and again came the thunder crash,
Now and again the lightning flash
Lit up young faces eager and tense.
Hands clenched tightly in suspense
While Andrews calmly explained the plan,
Cited the dangers, urged any man
Who wished to turn back to do so then.
But not one of the twenty-three men
Took this last chance to retire.
“We’re ready to go straight through hell-fire
To stop this war and get back home.
Ohio for us—or Kingdom Come!”

Andrews’ courage and perfect poise
Transformed the fears of those untried boys,
As they whispered that night on the war-torn road,
To the steel that the early martyrs showed.

They heard him say, without qualm or pang,
“If we win, cash and fame; if we fail—we hang!”
He convinced them all that the plan would succeed.
“Courage and bluffing are all that you need.
If you get caught before the raid,
Join their army,” Andrews said.

"Say you're from Kentucky State.
They'll swallow, sinker, line, and bait.
I've told one lie again and again—
That I soon would be one of Morgan's men.
But I always have a mighty good reason
To postpone enlisting for a season.
If you have to join up, remember we
Are welcomed in Eastern Tennessee.
So watch your chance, and some dark night
Pack your knap-sack with food and take your flight.
You soon will find your regiment
And be safe in a U. S. Army tent.

"Friday's the day that the raid is set.
That day there's only one train to be met
That's Southward bound, and that's a freight.
I hope to God it won't be late.
We should meet it at Kingston and pass on the siding.
The rest will be easy as buggy riding.
If you get quizzed, don't lose your head.
Look 'em straight in the eye," James Andrews said.
"They'll think you're very loyal and plucky
When you say you came from old Kentucky;
That you couldn't stomach ol' Abe any longer.
Yes, tell that bunch of Georgia crackers
Old Beau needs Minnies—and they're damn slackers
If they don't give us right of way
To get to Corinth without delay.

"That's the tale I'll tell if they question me—
That I'm slipping the train through Tennessee
On special orders. I've forged dispatches
From my agent in Corinth and in Natchez.
They're written in code, which I will explain
Means Right of Way for Andrews' train.

"Divide into groups of two or three—
Make for Chattanooga, Tennessee.
The train leaves there in the afternoon.
So outfit yourselves and get started soon.
Wear nothing but civilian suits;
Each get a pair of Confederate boots,
Dress up in the latest Southern fashions.
Here's money for clothes and tickets and rations.
Meet me Thursday night in Marietta.
The Railroad Hotel is the rendezvous.
Goodbye, my lads, and God bless you!"

Twenty-three men shook Andrews' hand
And promised to meet him in Dixie Land.

Divided up into smaller groups,
Successfully dodged the Northern troops,
Ferried the rivers, clambered the heights
Of the Cumberland mountains; spent the nights
In mountain cabins with mountain folk,
Talked the Southern cause whenever they spoke.

One night of comfort they remembered long:
A roaring fire and story and song—
Mrs. Hall welcomed these Southern boys
And shared her home and her simple joys,
While Andrews and others of his spies
Ate Southern food and reeled off lies,
And slept in Southern poster beds
In the Company rooms under candlewick spreads.

Three of them stopped at a mountain home—
Lean-to—dry run—and one room.
Told their tale in the eager ears
Of the simple, trusting mountaineers;
Ate the food of a scanty store
And let their hosts sleep on the floor,
While they as "Volunteer Confeds"
Slept soundly on the only beds.

Another time they made their way
To a little house at close of day
Where dwelt a widow, whose loyalty
To the Northern Cause they rejoiced to see.
For the Stars and Stripes of U. S. A.
Hung over her mantel night and day,
Proclaiming to all that her heart was true
To the Star Spangled Banner, red, white, and blue.

The spies, though honoring her in their hearts,
Yet ever mindful of their parts
In the double play where they were cast
Pretended that they were aghast.
"You'd better get rid of that Yankee rag
And put up the right sort of flag.
If you don't, we'll tear the damn thing down
When we come back to take this town."

So with lies and cunning, bravado and threat,
They managed to fool everyone that they met
And made good time, with the goal in sight—
To reach Marietta Thursday night.
But—a message was passed by word of mouth
To every group that was hurrying South,
"Andrew decides it's best to delay.
So the raid will come off on Saturday."

Words lightly spoken, yet ponderous in weight,
Loaded with portent of direful fate.
Twenty-four hours is but a short span
As it ticks off on clocks. Yet Andrews' plan,
Which he and Mitchell had mapped with such care,
Depended on Time with no time to spare,
And his casual change made the difference between
Life and death for himself and seven of his men.

Friday night they gathered in Andrews' room
In the Country Hotel—Though aware of the doom
That might overtake their enterprise
They were soon reassured by the words, and the eyes,
Of Andrews, who could cast such a hypnotic spell
That would make men follow him even to hell.

Who were these men? Each must be made
A part of the tale of the Railroad Raid,
For battles are men—not cannon—not guns
But the lives and the soul of somebody's sons.

Here are the names of that valiant race
Inscribed today on a monument scroll
At Kennesaw Station (Big Shanty, then)
Where that April morning the Raid began.

Campbell, Wilson, Slavins, Scott
Laughed at Fate, and cast their lot.
“Come what will, or come what may,
We'll ride ‘The General’ Saturday.”

Robinson, Mason, Dorsey, Knight
Tested true in camp and fight
With Porter, Reddick, Hawkins, Wood,
Ross and Wallom pledged their blood
To stand by Andrews and each other
As brother would stand by a brother

Parrott, Buffum, Wilson J. A.
Answered the roll that fateful day
Confident that God would bless
Their daring raid with high success.
Pettinger, Bensinger, Brown, Shadrack
Never thought of turning back.

Among these ardent young volunteers
Were Brown and Knight—the engineers—
With Wilson—the fireman—made the crew
Sworn to rush the “General” through.
The sixteen other men were to hide
In the box cars on the perilous ride.

"You, lads, in case you'd like to know,
Are powder and Minnies for General Beau,"
Andrews grimly joked in muted voice
"If anyone regrets his choice
And wishes to turn back even now
I only ask that you keep this vow
That no matter what happens you won't betray
Your comrades who elect to stay."

Their lives were at stake as each of them knew,
But the thought of triumph thrilled them through.
And though Sergeant Ross had urged delay
To await a more auspicious day
Yet when Andrews said in his calm deep tones,
"I'll succeed today or leave my bones
In Dixie land," they replied in chorus,
"Regardless of what lies before us
We'll stick together, and fight if we must.
And conquer we will; for our cause, it is just."

In the twilight of morning in mist and rain
Nineteen men and Andrews boarded the train
With the engine "General" steaming away,
The pride of the South, and the W & A.

Georgia in April—Dogwood trees.
Honey suckle. Buzzing bees,
Mocking birds, and springtime haze,
Nature's peace in Nature's ways.
Blackberries blooming in snake fence crotches,
Trumpet vine buds in coral splotches,
Humming birds drinking native wines
From fox grape blooms and muscadines.

"Punch—punch—punch with care;
Punch in the presence of the passeng-air."
Conductor Fuller went through his train
Punching his tickets, hoping the rain
Wouldn't swell the rails—oak two by fours—
And buckle them up through the flimsy floors
Like he'd read one did the other day.
"Killed a man right where he lay
Stuck the poor devil through the back
Asleep on the floor on a gunny sack.
Them 'snake heads' are popping up again
Due to patching the tracks, and all this rain.
It makes rail-roadin' pretty exciting
And just as dangerous as sho 'nough fighting.
Thank God for the 'General.' That engine's a dream.
She could make thirty miles on a full head of steam;

But rules are strict—"eighteen miles an hour."
But wouldn't I love to test her power!
She's the finest thing in the C. S. A.
That's what all the trainmen say."

Conductor Fuller had reached the door.
He counted his tickets—twenty-four—
Counted heads—and both counts checked.
"In fifteen minutes, if we ain't wrecked,
We'll be at Big Shanty," Fuller said.
"The 'General' gets water and we get fed.
I advise you fellows from Tennessee
To try our Georgia hominy."

As he slammed the door he did not see
A tall bearded man glanee furtively
And give a nod to the man at his side,
Nor hear him whisper, "We begin our ride
On his prize engine when they stop to eat,
So at Big Shanty Station keep your seat.
When the Eating Shack slams on the last one
You and I must pull a fast one.
In front of this coach are three empty freights,
Just the place to conceal our mates.
I'll stand by the track. You slip in between
The coach and freight and pull out the pin.
Then I'll signal the boys to follow me
And we'll be off—to Tennessee."

The brake chain clanked, and the train slowed down
And came to a stop at Big Shanty town.
"Peek," shouted Fuller, and a big farm bell
Added its clank to his hearty yell.
Sleepy, but hungry, men got off the train—
Cursing the mud and the pounding rain,
Crowded the shanty, stood round the wall
Hoping the food would serve them all;
Not one bothering about
Twenty-two men who hadn't come out.
"I reckon that bunch that stayed on the train
Are too soft yet to take the rain,"
Said Conductor Fuller to the engineer
Scratching the cinders out of his ear,
Rubbing his face with a red bandana—
Toilet made in the trainman's manner.

Kane ran the 'General' as trainmen do.
He declared "She's human as me an' you.
She has her good days and she has bad ones,
Some of 'em happy and some of 'em sad ones.

Some days she whistles and rings her own bell
But the next thing you know she's raisin' hell.
Only female General in the whole caboodlin'.
Hi! Come here, Boy, and stop your doodlin'.
Bring us some grub and bring it quick.
These war time niggers make me sick,
Lazy and niggerly as can be,
Think they all goner soon be free.
We gotta stop and get more wood.
This fence rail fuel ain't so good.
It burns like tinder and heats her up,"
—As he poured molasses in his cup.
"The worst thing about the war," he said,
"Is the parched corn coffee, and the damned blockade.
Here comes Mr. Murphy, soakin' wet.
He's Irish Green, but he ain't run yet.
Hurry up, Fuller, and get your grub
And help me fill that leakin' tub.
That tank's a sieve and no mistake.
Wherever we stop it leaves a lake.
If only the smugglers would bring some lead
To use for solder—but instead
Every pound goes for Minnie balls;
But for every Minnie a damn Yank falls.
So let her leak! I'll fill her up.
Hi there, Boy, another sup
Of Georgia coffee—ain't it awful—
But anyhow it's cheap—and lawful."
Johnny Kane talked on and didn't care
Whether anyone listened. He tilted his chair
And bit off a wad of plug tobacco,
A happy-go-lucky Georgia cracker.

Fuller opened his mouth to speak,
When he heard a wheeze, and then a creak.
He made a jump and gave a shout—
"My God, my train is pullin' out.
Come, Murphy! Come on, Kane!
We got to catch that God-damn train!"

Hundreds of men in the camp nearby
Saw the train start off and heard the outcry.
But not one offered to enter the race.
Instead they jeered at the men who gave chase,
Waved their caps and slapped their thighs
And blew them kisses as Goodbyes.
But Fuller and Murphy and Johnny Kane—
Like all good trainmen loved their train
And the fear that the General would come to grief

Spurred them on to catch the thief.
So they ran down the track like Georgia rabbits
As if chasing trains were daily habits,
Two miles to Moon Station. There a section crew
Had a hand car, strong and new.
Fuller, though winded, reached it first;
Grabbed the jug and slaked his thirst.
When he got his breath his story he told.
"Those damned conscripts sure are bold.
Maybe they don't like soldierin' much,
But stealing the 'General' beats the Dutch.
If they wreck that engine, hangin's too good!
But they can't get far, for they ain't got wood."
"They wan't no conscripts," the foreman said.
"If they aint Yanks you can strike me dead.
They took my tools, cut the telegraph wire,
Loaded plenty of wood and built up their fire.
That engineer knows what he is doin'.
Say, was you thinkin' of pursuin'
That train makin' twenty miles an hour
With jest your nerve and you two-foot power?"

Fuller didn't answer. He was saving his breath
For a struggle he knew meant life or death.
He looked down the track. It was miles down-grade.
And in an instant his plan was made.
The hand car was lifted onto the track.
Fuller got on and faced it back
To pick up weary Murphy and Kane,
Then reversed and headed North again,
Panting out an explanation
About the desperate situation.
"They were Yankee spies. A devilish plan.
They'll burn the bridges if they can.
They have already cut the wires.
My God! They were clever liars.
That tall one said again and again
That he was joining Morgan's men.
'Dashing raids are the thing for me,
So I'm headed for the cavalry'.
He said as I took his ticket up.
And then he laughed, the sneaking pup!
Merchant from Nashville, so he said,
Virginia born and Kentucky bred.
He did talk smooth and no mistake.
Here! Look at that track! Put on the brake!"
But the cry came too late. The car gave a pitch,
And landed the men and itself in the ditch.
They picked themselves up. Fuller straightened his back.

"I reckon they thought if they tore up the track
They'd ditch any engine giving chase.
They never thought of a hand car race.
"We'll have her right back," Capt. Fuller said.
"We can make good time on this downhill grade."
Unmindful of their scratches and aches
They scrambled on and took off the brakes.
And the little hand car came to life
As if aware of the valiant strife
And the courage and pluck of the men she bore
And she ran as she never ran before.

Suddenly Fuller gave a shout,
"Thank God the 'Yonah' hasn't pulled out.
She's a li'l ol' Engine but she can run
And here's where we really begin our fun."
With a hurried word of explanation
They boarded the 'Yonah' in jubilation,
Were joined by a half dozen men
And the chase of the spies was on again.

Andrews had seen the 'Yonah' too,
But his mind was set on rushing through
And riding the 'General.' He thought that he
Could beat any race to Tennessee.
But he didn't know Fuller, Murphy, and Kane
When he thumbed his nose at the little wood train.
"It will make no difference," he said to Knight.
"If we stop to destroy it, we'll have to fight.
I hate to shed blood if I can avoid it."
Had he taken the Yonah and destroyed it
Fuller's pursuit might have been so delayed
That a different end of the famous raid
Would have been woven in song and story
And Andrews have reaped reward and glory.
But in no undertaking can we see the end
Any more than one sees round a railroad bend.
The track goes on, with many a curve
And the Engineer with courage and nerve
Puts his trust in the pikes and the ties and the rails,
While Fate grimly tips her invisible scales.

Andrews pressed on in high exultation.
He waved at the crowd at Contersville Station,
Stopped not a second. Only blew a salute,
For the need of more fuel was getting acute.
He shouted to Knight, "At Cass Station slow down.
There's plenty of wood, and not much of a town.
The General is hungry and thirsty I think,
So we'll give her some grub and all she can drink."

The stop signal blew. The General stood still.
The Spies scrambled out and started to fill
The tender with wood from the pile near the track,
When the Station man, Russell, ran out of his shack,
Yelling, "What in tarnation? Where's the passenger train?"
Andrews was ready. "This dispatch will explain.
We've got to get powder to Beauregard.
Those damnable Yankees are pressing him hard,
But we'll rush the freight through. Three cars full of powder
If only the Southbound trains don't crowd her.
I need a schedule of the W. & A.
It will help in avoiding further delay."

Without a suspicion of anything wrong
Bill Russell said "Sure; take this one along!
There's nothing, be it easy or hard,
That I wouldn't do to help Beauregard."

Andrews with perfect command and poise
Shouted his orders. "All aboard, boys."
Shook hands with Russell, climbed in the cab.
"Thank God for the gift of gab.
I hope the agent at Kingston will be
As easy to handle," calmly said he.
"And I hope to God that Southbound freight
Is running on time. If the damned thing is late
It might turn our raid into a chase.
But—I'll bet on the 'General' to set the pace,
If she gets a clear track she'll do her part;
And besides, we've got two hours' start.
The telegraph wires are cut, so of course
They'll have to send a man on a horse
From Big Shanty Station down to Atlanta;
But even a good horse in a canter
Couldn't possibly make it in less than an hour.
A running horse versus high steam power
Gives us the odds. I'll bet my last shilling
We'll finish the job without any killing.
Brains and bluff have carried me through
Some mighty tight places, I'm telling you."

Andrews mood of high elation
Became subdued as they stopped at the Station.
With an air of assurance and command
He got off the engine and waved his hand
To signal the engineer to back
The General on the siding track
When the main track was cleared he went in the station,
Told the agent how desperate the situation
Of Beauregard, and made it plain
That he was in charge of this special train.
"It is imperative today

That I get this through without delay.
There are thousands of valiant men whose fate
Depends on the powder in that freight.
I may not make it. I can only try.
But I and the General will do it or die."

The General was oiled, and the tender was stocked.
Andrews sighed with relief when the freight that had blocked
The track to the North came puffing in sight;
And his heart beat with triumphant delight
That his story had met with no sign of doubt.
He whispered to Knight, "In five minutes pull out."
With jubilant spirit he watched the freight cars
Slide by one by one, and was blessing his stars
For a clear track ahead, and a long freight to face
Any pursuing train that might try to give chase.
But the last car hauled by, Andrews' jubilation
Plunged to despair and helpless frustration,
For a little red flag hung limp in the rain
On the caboose of the Southbound train!
For the little red flag on the rear of the freight
Was the signal that Andrews would have to wait,
Give another train the right of way
On the single track, that fateful day.
For Mitchell's raid in Alabama
Had started rumors, terror and clamor.
Panic hung like a heavy pall.
"Chattanooga is bound to fall.
We must get supplies out of Mitchell's way.
Rush food and rolling stock today
To Atlanta—" So the orders ran.
So Mitchell's success ruined Andrews' plan,
And he cursed himself for postponing the raid.
"Yesterday," he bitterly said,
"One freight was all we would have met.
Today there's an extra. But we'll win yet;
Since it's only ten minutes we've time to spare
For the General can run when she's taking a dare.
They can't get an engine that can touch her for power,
So they won't catch us, though we wait here an hour.

So—cheer up, boys. Don't look so downcast.
Only one more freight and our troubles are past.
Thank God! There she comes. Get set for a dash.
I'll attend to the switch. We'll be off in a flash."
The last car dragged by. Then Andrews' heart fell.
"Knight! Look at that signal. Dam it to hell!
Another red flag, and we'll have to wait
Another ten minutes even if it's not late."
But with admirable acting he made it appear

To the crowd near the track that his only fear
Was for Beauregard. "Every minute's delay
In getting him help may be fatal today.
He could stop old Mitchell, that damned Yankee booger
Then join with Smith and save Chattanooga."
The crowd was convinced, almost to a man,
Gave Andrews a cheer and applauded his plan.
Only the old switch tender, apart from the throng,
"Jes felt" in his bones that something was wrong.
"Ef that stylish dressed man who acts as if he
Owned the whole damn road clear to Tennessee
Had orders that gave him clear right of way,
Them freights wouldn't be comin'. Now that's what I say."
But the unthinking crowd was only impressed
By Andrews' fine face and the way he was dressed.
So the old switch tender mumbled away
While Andrews' watch ticked a half-hour's delay.

At last the third freight train came round the bend.
Andrews watched, breathless, the car at the end.
When he saw no red flag he breathed free again,
And waved his high hat at the lumbering train.
He called to the tender that the switch be adjusted,
But the switchman, suspicious and clearly disgusted
With the newcomer's manner and "biggety way"
Did not make a move the command to obey.
He drawled with provoking deliberation,
"I done took the switch keys into the station
And I don't open no switch on yo' say.
You ain't the boss of the W. & A.
You gotta show me somethin' in writin'
To prove to me which side you're fightin'.
I for one don't believe your tale
And ef you tech them keys I'll put you in jail."

Andrews saw that for once "brains and bluff"
And clever play acting were not enough.
He knew now what he had to do.
"I have no more time to waste on you,"
He answered; then without hesitation
Walked calmly into the railway station,
Took the keys and set the switch right,
Then waved his hand as a signal to Knight
To take the main track; and the General pulled out.
Andrews climbed aboard and the crowd heard him shout
As he tossed the keys to a man by the track,
"You'll find it's all right"—and without looking back
He pulled the bell cord, gave the whistle a toot
And pulled slowly out with his spies and his loot.

But as soon as the station was out of sight
Andrews shouted to Brown and Knight,
"Push her, boys! Wilson, pile on the fuel.
Hurrah for the General—Mitchell and Buell!"
Like a race horse full of spirit and nerves
The General dashed round the tortuous curves.
Then the tender brakes shrieked and the General stood still
And the spies scrambled off and worked with a will
To take up a rail, cut a telegraph wire,
Load the box cars with ties to use in the fire;
When a sound unmistakable pierced every ear:
A train engine's whistle shrill and clear
Echoed loud through hill and wood
And they knew that they were being pursued.
They scurried back to their stolen train
And dashed on again through a pouring rain,
To the town of Adairsville. Another through freight
Stood on the siding. The day coach is late."
The next station "Calhoun was nine miles away
And Andrews decided without further delay
To put on full steam and make a wild dash
To get to the siding, or end in a crash.
In less than nine minutes the distance was made—
The record for speed was this Railroad Raid!
The belated day coach was ringing her bell
And had moved a few yards when a warning yell
And the General's whistle peremptory and terse
Made the Engineer grab at the bar and reverse.
The driving wheels spun on the slippery track
And then they got grip—and pulled her back
Not a minute too soon, as the General rushed in
And stopped on the siding—"Just saved by the skin
Of my sto' bought teeth," the Engineer drawled.
"Ef that General had hit us w'ed sho' abeen mauled
And befo' I go on, that there engineer
Has gotta explain what he's doin' here,
With the General pullin' a li'l ol' freight,
And why he didn't wire my train to wait."

Andrews retold, for the sixth time that day,
Of Beauregard's peril. "I cannot delay
To get to his aid, no matter the cost.
Unless he gets powder his army is lost."
Again they believed his ingenious lie,
Wished him God speed and let him get by.
He had passed five trains and this was the last.
His mood was exultant. "Our danger is passed.
That lifted rail will stop pursuit
And likely wreck the train to boot.

We'll lift one more rail between here and the bridge
Of the Oastenaula—just beyond that ridge.
There we'll build our first fire and leave it to burn,
Then rush on, firing each bridge in turn.
We will leave twelve fires as the visiting card
Of the 'Powder Special for Beauregard!' ”
Andrews' assurance inspired his men
As they tackled the job of rail lifting again.
But with all the elaborate plan he had made
His lack of foresight doomed his raid.
He set out to tear up a railroad track
But provided no tools. This fatal lack
Hampered his men and caused delay
When every second counted, that day.

With an iron bar and levers of wood
They yanked out spikes the best that they could
“Why in hell,” swore young Shadrack
“If they meant to tear up a railroad track,
Didn't they bring sledges and crowfoot levers.
These green wood poles ain't no good heavens.”
Andrews heard this just complaint,
Let go his dignity and restraint,
Snatched the crow bar—“You're too damned slow,”
And on the spike he rained blow on blow,
While the men tugged with all their strength
To lift up the rail its entire length.
But one end only was loosened and bent
When suddenly the air was rent
By the sound of doom—an engine's whistle
Turned blood to water, and bone to gristle,
Turned the vaunted raid into a flight
And hope to despair. The ominous sight
Of an engine and tender loaded with men
Sent the spies pell mell to their train again.

Where had they come from, this engine and crew,
Who were the men who dared to pursue
Over torn up tracks at break neck pace,
Changing the raid to an engine race?

We know the names of all of the spies
For a monument stands where their leader lies
With seven of his men in an honored spot.
Shall the names of their captors be forgot?
Valor in danger, in war or peace,
Gives to the spirit of men release
From body's demands for safety and care
And spurs him on to do and dare;

And surely no deed in that bitter time
Showed courage any more sublime
Then Fuller and Murphy's wild pursuit
Of the engine thieves.

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Here ended the ballad of Carrie Weaver Smith. The last twelve lines were on loose sheets and have been included with the ballad. The story of the close of this raid has been written through the kindness of Mr. Richard W. Hogue.

Andrews, with crew and train, had just left the little station of Calhoun, Georgia. No pursuers being in sight, the "General" was brought to a stop, telegraph wires were cut and a rail was loosened at one end and bent. The pursuing train was heard approaching. Captain Fuller stood on the tender on the lookout for obstacles. Rounding the curve at full speed he saw the bent rail too late to stop and gave himself and crew up for lost. The rail being on the inside of the curve and the weight of the engine on the outside, the swift train pressed the rail down and passed over it in safety. But for this Fuller's engine, the "Texas," would have been derailed and the pursuit ended.

Andrews decided to uncouple two cars and start them back toward his pursuers. There was not time to wait for a down grade, the "Texas" having the advantage of the "General" in more and better fuel. When Fuller's train was quite close, the "General" stopped, gave the uncoupled cars a push and rushed on. The "Texas" quickly checked its headway, reversed, moved slowly backwards and two empty cars were added to Fuller's train, which resumed its speed. It was again slowed up by ties on the track which Fuller, jumping off the tender, removed. On the trestle of the bridge at Resaca, Andrews slowed up, dropped a car and passed the little village. His train moved on while Fuller was coupling the trestle car and leaving it and the two other "extras" on a siding. This gave Andrews' crew time to place more ties and an old rail across the track. Again Fuller's train just missed being derailed and he was almost thrown from the tender.

Andrews had now given up all hope of outdistancing his pursuers. His only chance lay in derailing their train. His men kept throwing out the ties they had stowed for fuel, while Fuller kept slowing up, removing them and continuing the chase. Stopping at a wood station the "General" was refueled while the "Texas" was being slowed down for the removal of obstructions. Again Andrews stopped and ordered his crew to remove a rail. Working with improper tools they had scarcely loosened a few spikes when they had to resume their flight. They passed thru Dalton, where Andrews counted on Fuller's stopping to send a telegram ahead before the wires were cut. The time gained by this delay would enable Andrews to burn the Chickamauga bridge and others beyond. This done, the pursuit could not be continued. Here an unforeseen circumstance intervened.

Among those who joined Fuller's forces en route was a thirteen year old boy who happened to be an assistant telegraph operator. This lad was detailed by Fuller to send his telegram at Dalton. He did this a few seconds before Andrews' men had cut the wires a mile beyond Dalton. Even if they escaped Fuller now, capture would await them at Chattanooga, thanks to this telegram. It was raining in torrents when Fuller's train approached what was known as the Great Tunnel, filled with dense smoke from the fleeing "General." Fuller could not know what obstructions might lie in the tunnel or whether ambuscade lay in wait for him and his men. Fully realizing the dangers in the face of strong remonstrances he ordered full steam ahead and emerged in safety. Andrews' train was approaching the first Chickamauga bridge. He ordered his one remaining car set on fire while running, came to a stop at the covered wooden bridge and left the slowly burning car on the track. Seeing the car and its threat to the bridge, Fuller moved his train into the smoke, the burning car was carried a short distance to Ringold and sidetracked. When the "Texas" began to close in on the "General" a few miles beyond Ringold the fugitives recognized the futility of further flight over the rails. It was the end of the most unique and dramatic railroad episode of its kind, perhaps of any kind, ever recorded. The "General" was reversed and started back toward the "Texas." But there was little steam and it moved very slowly. Fuller reversed, moved gradually backwards and the "General" nestled gently against the "Texas" and there rested. Its furious conscripted flight was over.

For the sake of the record, and from the point of history, a number of questions remain to be answered: such as, what happened to the "General," what became of Andrews and his men and what would have been the result if Andrews' mission had succeeded?

The "General" was owned by the Western and Atlantic Railroad Company. It had not been seriously damaged, due chiefly to the fact that the two men who handled it were skilled engineers. It continued to serve the Southern Army, later hauled passenger trains and after doing lighter work was preserved as a war relic. Captain Fuller remained conductor until Sherman captured its territory. He was then placed in charge of the rolling stock of the road and kept it out of Federal hands. For ten years after the war he held his old position as conductor.

Had Andrews' men surrendered they might later have been exchanged, as some of them were, for Confederate prisoners of war. Andrews had been a spy and was doomed if caught. He knew the country, had friends in various places and was possessed of great fortitude, resourcefulness and capacity for deception. Knowing this, his men secured a promise from him before the raid began. That promise was that he and they would stick together if their mission failed. They were well armed, two of them had compasses and from where they abandoned their engine there was a comparatively short cut, largely thru mountains free of "rebels," back to Federal lines. Andrews' last command left

them thunderstruck and dismayed. It was that each man should jump from the slowing engine and try to find his way out of enemy country. They experienced bewilderment, hunger, exhaustion, fever, despair, escapes from foul prisons, recapture, the conviction and execution of seven as spies, the final escape of eight and the exchange of six, on March 18, 1863. Aside from individual acts of kindness, the most friendly and generous treatment accorded them was by the Confederate leader Morgan and his raiders. When Andrews was captured he was placed in the hole of the prison where his men were. They managed to make an opening thru the floor for him to join them when their preparations for escape were perfected. As the first to descend the improvised rope, Andrews dislodged a brick, rousing guards and soldiers, and all but one of his men were unable to leave. Andrews fled to a thickly wooded spot and climbed into the dense foliage of a tree where he escaped detection by pursuing men and bloodhounds. When they left two small boys who had followed them lingered behind. Glancing up idly thru the trees they saw Andrews and gave the alarm that led the pursuers to turn back. He swiftly descended, ran to the edge of the woods where a stream coursed by, seized a small dead log, with a limb for paddle, was intercepted by men in a skiff and captured for the last time. Having already been sentenced as a spy, Andrews was taken to Atlanta and hanged on June 7, 1862.

The consequences of the raid, had it succeeded, are thus summarized in the issue of April 15, 1862, of the *Southern Confederacy*, published in Atlanta. "Had they succeeded in burning the bridges" (between Atlanta and Chattanooga) "the enemy at Huntsville would have occupied Chattanooga before Sunday night. Yesterday (Monday) they would have been in Knoxville and thus have had possession of all East Tennessee.— We doubt if the victories of Manassas or Corinth were worth as much to us as the frustration of this grand coup d'etat. It is not by any means certain that the annihilation of Beauregard's whole army at Corinth would have been so fatal a blow to us as would have been the burning of the bridges at that time by these men."

NOTE: The material for Dr. Smith's ballad and the prose completion of the story is taken chiefly from two volumes written by one of the members of Andrews' party, William Pittenger. Twenty five years after the raid Mr. Pittenger, then a clergyman, visited the scene, interviewed Captain Fuller, confederate officers and others and examined court and other documents. He then wrote and published the authentic and dramatic volume entitled *Daring and Suffering*.

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Carrie Weaver Smith, author of the ballad—"Andrews' Raid," was an unusually accomplished woman. Born, January 14, 1885 at Fayetteville, Georgia, daughter of a Methodist minister and grand-daughter of a professor of classics at Emory College, Oxford, Georgia. Her childhood was spent in and around Atlanta. Not far from her home were

the breastworks that remained of the Battle of Atlanta and here she was wont to play in these woods.

At the age of twelve she planned to be a doctor. She attended La Grange Female College but did not graduate because of an irregularity in her choice of subjects. She elected Hebrew when she should have taken Mathematics. It was during her four years here that she became a "student volunteer" with the idea of going to China as a medical missionary. Two more years of study were spent in the Scarritt Bible Training School at Kansas City for her missionary training and in 1910 she graduated from the Woman's Medical College in Philadelphia. She served in the Worcester Memorial Hospital at Worcester, Massachusetts as an Interne, but because of her so-called unorthodox beliefs concerning the church, she was rejected from work in the foreign missionary field.

As Physician in the Virginia K. Johnson Rescue Home at Dallas, Texas, her work attracted considerable attention throughout the state. She was invited by the American Social Hygiene Association of New York to prepare their exhibit for the San Francisco Exposition and was granted leave of absence to arrange this exhibit. She became Superintendent of the Girls' Training School of Texas. Here she did much in influencing opinion and obtaining legislation for the work with delinquent girls. One of the most spectacular controversies related to a \$10,000.00 appropriation for the erection of a barbed wire fence to surround the grounds. The plan was defeated and the public were convinced that such a school for immature girls should be for educational purposes, not for punishment. When "Ma" Ferguson became Governor, because she differed with her policies, Dr. Smith was removed from her office along with a large group of state employees.

She became Superintendent of the Montrose School in Maryland and here again she waged battle for scientific and sympathetic treatment of delinquent girls. Subsequently she became Superintendent of the National Training School for Girls, District of Columbia and here she introduced radical changes in the environment and policies of this institution. Her last work, 1938-1942 was in the Reader's Bookshop, Washington, D. C., where her knowledge of books and wide literary interests made this a congenial means of support.

A heart condition, unknown to family and friends, but which she had known for some time, caused her death, after a brief illness on May 22, 1942. Thus ended an active and noble life. She kept her determination not to "clutter up the remaining days or years by taking it easy." In a letter delivered to her family after her death but written nearly a year before, she wrote—"Death is too incidental to make all the fuss about. Life has been good and I know Death will be!"

Carrie Weaver Smith was a product of southern and New England ancestry, dating back to the colonial period. She was cosmopolitan in her interests, both in people and in events. She knew no racial distinctions, she had broad and abounding sympathy for all human beings and their struggles and achievements were paramount.

She expressed her likes and dislikes at an early age. She read widely but her reading had to be of the type to satisfy her alert and active mind. She had a great love for poetry and she commenced writing her own poetry before she was twelve years old. Her favorite poet was Emily Dickinson. In writing the ballad—"Andrews' Raid," she traversed the route by auto, then constructed a map showing the route. She made a careful study in the construction and operation of railroads as well as the customs and manners of the day. Would that she had been permitted to live to have completed it!

She believed in the innate goodness of man, in the necessity of charity and goodwill, in the doctrine that human conduct should be directed towards the solution of moral problems rather than in their condonation. She was what one could aptly call a believer in the religions of the world, in the spirit which permeated these religions and in the magnificent objectives which lay beneath their chaotic procedural differences. She, in her religious beliefs, walked with the forerunners of today's greatest idealists and she suffered the incidence of her moral strength which resulted in open revolt from those many systems of Christianity which had lost sight of Christ and his teachings. She was not one to sway the crowd with harangue, rather she spoke the language of all classes of people. She understood their adversities, their human failures. She was confessor to many a poor wayward girl whom she nourished and placed on the paths of peace and happiness. Men sought her aid in shaping their distraught lives. Her shop was a meeting place for old and young, rich and poor and those mentally strong as well as those who were weak in mind and character. Call her "unorthodox" if you will, but many of us will prefer a far better name.

The ballad "Andrews' Raid" was brought to the attention of your Editor by a director of our Chicago Chapter who had become acquainted with Dr. Smith in Washington, and has had the privilege of hearing her read aloud portions of the ballad. After Dr. Smith's untimely death, this member of our Society asked and secured the permission of Dr. Smith's family to submit the ballad for publication in our BULLETIN.

Your Editor in preparing this brief sketch of Dr. Carrie Weaver Smith is indebted to her sister, Miss Leonora Smith of Western Carolina Teachers College, Cullowhee, N. C., and to Mr. Richard Hogue of Remington, Virginia for the facts relating to her life. The last paragraph outlining her beliefs is an expression of Mr. Jay Murphy, a young man who knew and greatly admired her. To all three, I wish to express to them my thanks for their aid in furnishing these facts concerning her life.

Von Gerstner and our First Locomotives

By CHAS. E. FISHER

In our Bulletin #6 we published the U. S. List of 1838 of locomotives on our early railroads and in Bulletin #20 appeared a list of the English-built engines that came to America. Both of these bulletins have been out of print for some time and this subject of our earliest locomotives is one that constantly recurs.

I have not always been able to agree with our English "brothers" as to the disposition of certain of these English-built locomotives. While they have access to the records of their builders it has been found that there have been inaccuracies ranging from the name of the road to the name of the engine. Furthermore, some of our American roads ordered their locomotives through an importer. The importer purchased these engines through his English Agent. The Agent purchased these engines where he deemed best. The builder received the order from the Agent and is carried as such on his records, but the destination of the engine or equipment was unknown to him. The laments made by the president of the Petersburg R. R. upon delivery of locomotives from a builder other than what he specified to the importer present this case clearly enough.

For this reason, if no other, I am about to introduce a new source of material. The U. S. Report of 1838 was compiled by our Treasury Department as the result of a frequency of boiler explosions. The survey covered every known boiler in the country. That several were missed, that the Agents sent out to acquire this information were to a certain extent ignorant of the subject, no one will deny. Save for a few omissions and errors, this list of 1838 has stood the test of time. Franz Anton Ritter von Gerstner, born in Prague in 1793, came to this country in the fall of 1838. He was a brilliant engineer, he was the builder of the first railroad in Russia in 1838 from St. Petersburg to Zarscoo-Selo and Pawlowsk, a distance of 17 miles. He came to this country to study our internal communications and with his carefully trained eye and his engineering knowledge, his observations must rank amongst the best. He was a victim of pneumonia, died and was buried in Philadelphia in 1840. It was your Society that restored the marker or tombstone of this illustrious engineer. In 1842 his observations were published, in German, and now that this Society has fallen heir to a set of these volumes, it is our hope that after this conflict has ceased, translations of this work can appear in our publication from time to time. In no place else will be found so carefully set forth a description of our railways and canals. Von Gerstner visited them all, many that the U. S. Treasury Agents missed and while he did not list the individual locomotives, he did record the number owned or had been owned by each road and in many instances he lists the quantity furnished by the builder. This work then, forms an admirable check list with the one of 1838 and these two, together with the early reports of the railroads themselves will serve as the authority for this list and my comments.

For the sake of uniformity I am going to follow the arrangement of the list of 1838. The list of locomotives will appear as in that report and the comments will follow.

Bangor & Piscataquis R. R.

Pioneer 20 hp High R. Stephenson, Newcastle, 1836
#6 20 hp High R Stephenson, Newcastle, 1836

Von Gerstner finds two locomotives on this road but says nothing about the builder. In our Bulletin #34, Herr Gaiser states both were built by Rothwell. The #6 "Bangor" was probably built in 1834 as the dates in this report usually refer to the date the engine was placed in service on the road, not the date of construction. On the Petersburg R. R. we find a "Pioneer" built by Rothwell in 1832 that was sold. It is possible that they may be one and the same locomotive.

Boston & Providence R. R.

Whistler	30 hp	High A. L. Stevenson, Newcastle	1833
Boston	30 hp	High E. Bury, Liverpool	1835
New York	30 hp	High Geo. Forester, Liverpool	1835
Lowell	30 hp	High Locks & Canals Co., Lowell	1835
Providence	30 hp	High Locks & Canals Co., Lowell	1835
Baldwin #1	30 hp	High Baldwin, Philadelphia	1836
Baldwin #2	30 hp	High Baldwin, Philadelphia	1836
Baldwin #3	30 hp	High Baldwin, Philadelphia	1836
Young #1	30 hp	High Newcastle, Newcastle, Del.	1836
Young #2	30 hp	High Newcastle, Newcastle, Del.	1836
Philadelphia	30 hp	High Wm. Norris, Philadelphia	1835

Von Gerstner agrees as to the number but he correctly states that the "Whistler" was built by R. Stephenson. This locomotive, as stated in our Bulletin #4, was one of the two engines imported from England in 1832 by the Boston & Lowell R. R. Because of the delay in building the road, the smaller of the two, the "Whistler" was sold to the Boston & Providence R. R. Here again, the date shown is the date the engine entered service on the B. & P. R. R.

Boston & Worcester R. R.

Yankee	30 hp	High Mill Dam Foundry, Boston	7- 3-1834
Lowell	30 hp	High Locks & Canals Co., Lowell	6-11-1836
Lion	30 hp	High E. Bury, Liverpool	8-24-1836
Wm. Penn	30 hp	High Baldwin, Philadelphia	4-13-1836
Elephant	30 hp	High Baldwin, Philadelphia	4-22-1837
Meteor	30 hp	High R. Stephenson, Manchester	4- 2-1834
Comet	30 hp	High R. Stephenson, Manchester	1-21-1835
Rocket	30 hp	High R. Stephenson, Manchester	5-26-1835
Mercury	30 hp	High R. Stephenson, Manchester	7-20-1835
Jupiter	30 hp	High R. Stephenson, Manchester	8- 5-1835

Von Gerstner agrees with the above and the dates given are for the first trip made by the locomotive, taken from the corporation records.

Boston & Lowell R. R.

Stephenson	30 hp	High	R. Stephenson.	Newcastle	5-27-1835
Patrick	30 hp	High	Locks & Canal Co.,	Lowell	6-24-1835
Lowell	30 hp	High	Locks & Canal Co.,	Lowell	7- 1-1835
Boston	30 hp	High	Locks & Canal Co.,	Lowell	11- 9-1835
Merrimac	30 hp	High	Locks & Canal Co.,	Lowell	4- 1-1836
Concord	30 hp	High	Locks & Canal Co.,	Lowell	5- 4-1836
Nashua	30 hp	High	Locks & Canal Co.,	Lowell	2-20-1838

Here again Von Gerstner agrees with the U. S. Report but he includes the date the locomotive entered service which has been indicated as above.

Eastern R. R.

Suffolk	40 hp	High	Locks & Canal Co.,	Lowell.	1838
Essex	40 hp	High	Locks & Canal Co.,	Lowell,	1838
Merrimack	40 hp	High	Locks & Canal Co.,	Lowell,	1838
Rockingham	40 hp	High	Locks & Canal Co.,	Lowell,	1838

Von Gerstner states at the time of his visit the road had four engines built by the Locks & Canal Co. and 4 by Bury. The report of the road for 1841 states the road owns seven engines built by the Locks & Canal Co. and three by Wm. Norris of Philadelphia. It would seem as though Von Gerstner had erred in this respect, certainly four new engines would not have been disposed of so quickly, and according to the corporation records, the following must have been the four engines referred to by von Gerstner:

Piscataqua	Locks & Canal Co.	1839
Naumkeag	Locks & Canal Co.	1839
Gen. Foster	Locks & Canal Co.	1840
Sagamore	Wm. Norris	1840

Possibly it was the intention of the road to order four engines from Bury and their intentions were communicated to Von Gerstner who set them down as a fact. So far as we can learn there were no Bury engines on this road.

Boston & Maine R. R.

Andover	30 hp	Locks & Canal Co.,	Lowell,	1836
Haverhill	30 hp	Locks & Canal Co.,	Lowell,	1836
Rockingham	30 hp	Locks & Canal Co.,	Lowell,	1837

Nashua & Lowell R. R.

Mars	H. R. Dunham & Co., New York, N. Y.	1838
Jehu	H. R. Dunham & Co., New York, N. Y.	1838
Roebuck	Locks & Canal Co., Lowell	1838

Von Gerstner found three engines and the U. S. Report lists the builders with the statement that all were placed in service Oct. 8th, 1838, but the above is taken from the corporate records.

Taunton Branch R. R.

Taunton 30 hp High Locks & Canal Co., Lowell, 1836
New Bedford 30 hp High Locks & Canal Co., Lowell, 1837

New York, Providence & Boston R. R.

Stonington 15 hp High Locks & Canal Co., Lowell, 1836
Rhode Island 15 hp High Locks & Canal Co., Lowell, 1836
Pawcatuck 15 hp High Locks & Canal Co., Lowell, 1836
Little Rest 15 hp High Locks & Canal Co., Lowell, 1836
Greenwich 15 hp High Locks & Canal Co., Lowell, 1836
Apponaug 15 hp High Locks & Canal Co., Lowell, 1836

The U. S. Report lists the first two engines as being 12x18" 54" 13250 lbs on drivers, 10 tons weight. The last four 11x16" 60" 11550 lbs on drivers, 8.5 tons weight, to all of which von Gerstner concurs.

The following four roads are not listed in the U. S. Report:

Western R. R.

Von Gerstner states this road has 8 Locks & Canals engines of 12x18" cylinders. It is evident that he might have seen some of this group and was told that the balance was on order and delivery was expected. At any rate, the corporate records list their first eight engines as follows:

Hampden	Locks & Canal Co., Lowell,	9- 3-1839
Berkshire	Locks & Canal Co., Lowell,	9- 3-1839
Hampshire	Locks & Canal Co., Lowell,	10-15-1839
Worcester	Locks & Canal Co., Lowell,	11-23-1839
Suffolk	Locks & Canal Co., Lowell,	12-24-1839
Franklin	Locks & Canal Co., Lowell,	1- 6-1840
Norfolk	Locks & Canal Co., Lowell,	6-14-1841
Middlesex	Locks & Canal Co., Lowell,	6-21-1841

Norwich & Worcester R. R.

Von Gerstner states there were eight engines on this road. If so, he could not have seen them all as some must have been on order. The corporate records indicate the following were the first eight engines:

Norwich	Rogers K & G	1839
Worcester	Rogers K & G	1839
Concord	Rogers K & G	1839
Nashua	Rogers K & G	1839
Bay State	Wm. Norris	1840
Oliver Evans	Wm. Norris	1840
Gen'l Lincoln	Wm. Norris	1840
Webster	Wm. Norris	1840

Hartford & New Haven R. R.

Four locomotives are stated as being on the road but he admits it is doubtful. The corporate records list the first three as follows:

Charter Oak	Rogers K & G	1838
Quinipiac	Rogers K & G	1839
New Haven	Rogers K & G	1840

Housatonic R. R.

As in the case of the H. & N. H., four locomotives are given tho' von Gerstner admits his doubts. The first three locomotives, according to the corporate records were:

Housatonic	Baldwin	1839
Pequonnock	Baldwin	1839
Bridgeport	Rogers K & G	1840

Turning now to New York State, von Gerstner adds a few new items of interest. Whether he visited the line of the *Delaware & Hudson Canal Co.*, I cannot for the moment say. It was not working, no report of the engines is found in the U. S. List of 1838, but our members will recall that in previous bulletins, from information obtained in the John B. Jervis Library of Rome, N. Y., information has been uncovered to the effect that we can state with considerable positiveness that the "America," "Delaware" and "Hudson" were not the names carried by those locomotives. Von Gerstner did visit the *Mohawk & Hudson R. R.* and it seems rather strange to find this important little road omitted from the U. S. Report. He states the road had four Stephenson locomotives and this agrees with the 1840 Annual Report of that road. Thus the "John Bull," "Mohawk" and "Hudson" commenced service in 1831 and the "Brother Jonathan" commenced service in 1834.

Utica & Schenectady R. R.

This road commenced numbering its locomotives from the outset. Nos. 1-8 incl. were delivered in 1836 and Nos. 9-12 in 1837. All were built by Baldwin, 8 hp. high pressure and weighed 9½ tons. Von Gerstner agrees with the above but adds the cyl. were 12x16" and that four of these engines were working on the road between Utica and Syracuse.

Saratoga & Schenectady R. R.

Fire Fly	12 hp	Low R. Stephenson	1832
Davy Crockett	12 hp	Low R. Stephenson	1833

Von Gerstner adds their cylinders were 9x16".

Long Island R. R.

Hicksville	High Locks & Cal Co., Lowell	1836
Post Boy	High Baldwin, Philadelphia,	1836
Ariel	High Baldwin, Philadelphia,	1835

New York & Harlem R. R.

New York	20 hp	Low H. R. Dunham & Co., New York,	1837
Harlaem	20 hp	Low H. R. Dunham & Co., New York,	1837
Yorkville	20 hp	Low H. R. Dunham & Co., New York,	1837
Manhattanville	20 hp	Low H. R. Dunham & Co., New York,	1837

The U. S. Report states the above engines were 10½x16" cyl. 45" drivers—von Gerstner states they had 11x16" cyl.

Buffalo & Niagara Falls R. R.

Buffalo	30 hp	High Locks & Canal Co., Lowell	1835
Niagara	30 hp	High H. R. Dunham & Co., N. Y.	1836
Tonawanda	25 hp	High Baldwin, Philadelphia	1838

Tonawanda R. R.

#1	30 hp	High Baldwin	1836
#2	30 hp	High Baldwin	1836
Batavia		Rogers K & G	1838

The last engine does not appear on the U. S. Report.

But there were other roads in this state, visited by von Gerstner that are not included in the U. S. Report.

Rensselaer & Saratoga R. R.

Champlain	Baldwin	1835
Erie	Baldwin	1835

Auburn & Syracuse R. R.

Syracuse	Rogers K & G	1838	All 10½x18"
Auburn	Rogers K & G	1838	
Cayuga	Rogers K & G	1839	

Lockport & Niagara Falls R. R.

Clinton	Rogers K & G	1838	(This road is listed in
Downing	H. R. Dunham	1838	the U. S. Report)

Ithaca & Owego R. R.

Von Gerstner found one engine on this road built at Albany, N. Y., by De Witt Bros. We know that "Old Puff," built by Walter McQueen in 1840 ran on this road and this may be one and the same locomotive.

Hudson & Berkshire R. R.

Three locomotives are listed on this road by von Gerstner—the "Hudson" and "Berkshire" of 1838 and the "Pittsfield" of 1839, all built by Wm. Norris, all 10½x18" cyl.

Catskill & Canajoharie R. R.

He lists one locomotive built by H. R. Dunham & Co. as on this road but fails to give name or any details.

Camden & Amboy R. R.

Between von Gerstner and the U. S. Report we are able to construct an accurate roster of the first seventeen engines on this road:

1	R. Stephenson	1831	11x16"
2-	3 Robert L. Stevens	1833	9x20"
4-	7 Robert L. Stevens	1834	9x20"
8-	9 Robert L. Stevens	1835	9x20"
10	Robert L. Stevens	1835	13x20"
11	Robert L. Stevens	1835	9½x20"
12	Robert L. Stevens	1836	13x20"
13	Robert L. Stevens	1836	9¾x20"
14	Robert L. Stevens	1837	9¾x20"
15-16	Robert L. Stevens	1837	13x20"
17	Robert L. Stevens	1840	18x27"

All but the #1 were built in the workshops of the company, Bordentown, N. J.

Camden & Woodbury R. R.

Fire Fly	12 hp	High C. Tayleur & Co., Warrenton,	1833
Red Rover	12 hp	High C. Tayleur & Co., Warrenton,	1833

The above engines were purchased from the Philadelphia & Columbia R. R. in 1838, where they carried the same names.

Morris & Essex R. R.

Orange	20 hp	High Seth Boyden, Newark	1837
Essex	20 hp	High Seth Boyden, Newark	1838
Speedwell	20 hp	High Baldwin, Phila.	1838

New Jersey R. R.

Newark	20 hp	High Baldwin	1835
New Jersey	20 hp	High Baldwin	1836
New Brunswick	20 hp	High Baldwin	1836
Elizabeth	20 hp	High Baldwin	1837
Rahway	20 hp	High Baldwin	1837
New York	20 hp	High H. R. Dunham & Co.	1837
Arresseoh	25 hp	High Rogers K & G	1838

Paterson & Hudson River R. R.

McNeil	6 hp	High In England	1833
Whistler	8 hp	High In Lowell, Mass.	1835
Baltimore	10 hp	High Gillingham, Balto.	1836
New York	11 hp	High Gillingham, Balto.	1836

Comment on both roads will be observed here. On the New Jersey R. R. von Gerstner reports nine locomotives, 1 from R. Stephenson and the eight others not given. On the Paterson & Hudson he reports four engines—2 from Gillingham & Winans, 12½x22", 1 from the Locks & Canal Co. and one from Rogers.

If the "McNeil" belongs on the New Jersey R. R., as stated by von Gerstner, we can add the "Uncle Sam" built by Rogers in 1839 to complete the quota on that road. On the other hand there was no Rogers engine delivered to the Paterson & Hudson River R. R. until 1844 and this would not be considered. Possibly the "Uncle Sam" was originally intended for the P. & H. R. and they were content to accept the "McNeil."

Elizabethtown & Somerville R. R.

Eagle Baldwin 1838
General Wall Baldwin 1842

This road is not in the U. S. List but von Gerstner reports 2 Baldwin locomotives on it. He probably saw the first but the second one must have been contemplated by the company.

Philadelphia, Germantown & Norristown R. R.

Ironsides	10 hp	High	Baldwin	1832
Sampson	12 hp	High	Newcastle Co.	1832
Velocity	12 hp	High	West Point Co.	1834
Star	8 hp	High	Wm. Norris	1834
Eagle	20 hp	High	Baldwin	1835
Arrow	10 hp	High	Newcastle Co.	1835
Arabian	20 hp	High	Baldwin	1836
Reindeer	20 hp	High	Baldwin	1837

Philadelphia & Reading R. R.

Neversink	25 hp	High	Baldwin	1838
Rockett	25 hp	High	Braithwait, London	1838
Firefly	25 hp	High	Braithwait, London	1838
Spitfire	25 hp	High	Braithwait, London	1838
Dragon	25 hp	High	Braithwait, London	1838

Von Gerstner reports seven locomotives in all, 5 from England, 1 Baldwin and one from Baltimore and to the above should be added:

Comet. Braithwait, London. 1838
Delaware—Winans 1838

Philadelphia & Trenton R. R.

Pennsylvania	14 hp	High	Baldwin	1836
New Jersey	14 hp	High	Baldwin	1836
Trenton	16 hp	High	Baldwin	1834
Black Hawk	16 hp	High	Baldwin	1835

Von Gerstner lists five engines on this road but fails to give any further information.

Philadelphia & Columbia R. R.

Here von Gerstner furnishes us with a list of names, the builder and the date they entered service on this state owned road:

Schuylkill	Baldwin	May 18, 1835
Delaware	Baldwin	May 18, 1835
Susquehanna	Baldwin	May 18, 1835
Ohio	Baldwin	May 18, 1835
Columbia	Baldwin	May 18, 1835
Pennsylvania	Baldwin	May 18, 1835
Philadelphia	Baldwin	May 18, 1835
Lancaster	Baldwin	May 18, 1835

Kentucky	Baldwin	July 23, 1835
Juniata	Baldwin	July 7, 1835
Brandywine	Baldwin	Oct. 22, 1835
Albion	R. Stephenson	July 7, 1835
Atlantic	R. Stephenson	June 18, 1835
John Bull	R. Stephenson	May 18, 1835
America	Coleman, Sellars & Son	Sept. 1, 1836
Sampson	Coleman, Sellars & Son	Sept. 1, 1836
Planet	E. A. G. Young	May 28, 1836
Columbus	E. A. G. Young	July 22, 1836
William Penn	Long & Norris	July 27, 1835
Washington County Farmer	Wm. Norris	Oct. 18, 1836
Conestoga	Baldwin	Feb. 22, 1837
Edward F. Gay	Baldwin	Mar. 24, 1837
Parkersburg	Baldwin	Apr. 2, 1837
Octorara	Baldwin	Apr. 7, 1837
Downingtown	Baldwin	Apr. 16, 1837
Pequea	Baldwin	Apr. 24, 1837
Indiana	Baldwin	May 1, 1837
Mississippi	Baldwin	May 9, 1837
Montgomery	Baldwin	May 15, 1837
Wisconsin	Baldwin	May 28, 1837
West Chester	Baldwin	Jan. 19, 1837
Virginia	Baldwin	Feb. 22, 1837
Paoli	Baldwin	Feb. 22, 1837
Bald Eagle	Garrett & Eastwick	Mar. 3, 1837
Telegraph	Garrett & Eastwick	Apr. 16, 1837
Enterprise	Garrett & Eastwick	May 23, 1837
G. B. Porter	H. R. Campbell	Mar. 1, 1839
Andrew Jackson	H. R. Campbell	Mar. 1, 1839
James Buchanan	H. R. Campbell	Apr. 1, 1839
Simon Cameron	Wm. Norris	Mar. 13, 1839
Simon Snyder	Wm. Norris	Mar. 15, 1839
E. B. Hubley	Baldwin	Apr. 15, 1839
James R. Clarke	Baldwin	Apr. 18, 1839
Old Berks	D. H. Dotterer	July 1, 1839
H. A. Muhlenburg	D. H. Dotterer	Aug. 8, 1839
The Crab	Ross Winans	May 1, 1839

Harrisburg, Portsmouth, Mt. Joy & Lancaster R. R.

Middletown	18 hp High Baldwin	1836
Mt. Joy	18 hp High Baldwin	1836
Flying Dutchman	18 hp High Baldwin	1837
Harrisburg	18 hp High Baldwin	1837
C. B. Penrose	18 hp High Baldwin	1837
Conewago	18 hp High Baldwin	1837
Henry Clay	18 hp High Wm. Norris	1838
D. R. Porter	18 hp High Wm. Norris	1839

Cumberland Valley R. R.

Cumberland Valley	24 hp High Wm. Norris	1837
Carlisle	24 hp High Wm. Norris	1837
Chambersburg	24 hp High Baldwin	1837
Shippensburg	24 hp High Wm. Norris	1838
Nicholas Biddle	24 hp High Wm. Norris	1838

Von Gerstner reports eight engines on this road and if so there are three that we are still unable to account for.

Pottsville & Danville R. R.

North Star 18 hp High Garret & Eastwick 1838

Von Gerstner found another locomotive that we cannot account for.

Williamsport & Elmira R. R.

Robert Ralston 18 hp High Wm. Norris 1838

Hazelton Coal Co.

Lehigh 18 hp High Garrett & Eastwick 1838

Hazelton 26 hp High Garrett & Eastwick 1838

One other engine is stated as being on this road by von Gerstner.

Little Schuylkill Navigation Railroad & Coal Co.

This road was not visited by the U. S. Agent. Von Gerstner states the road had three engines from England and two from Baldwin. Thanks to the researches of our member G. M. Hart we can list two of the English engines:

Comet	E. Bury	1833
Catawissa	F. Bury	1833
Tamaqua	Baldwin	1836
Tuscarora	Baldwin	1836

Beaver Meadow R. R.

Beaver	26 hp	—	Garrett & Eastwick	1837
S. D. Ingham	18 hp	—	Garrett & Eastwick	1836
Elias Eley	18 hp	—	Garrett & Eastwick	1836
Quakake	18 hp	—	Garrett & Eastwick	1836
Nonpareil	26 hp	—	Garrett & Eastwick	1838

Von Gerstner adds another engine to the above five but does not give name or builder.

Allegheny Portage R. R.

*Bush Hill	Wm. Norris	1837
*George Washington	Wm. Norris	1836
*Independence	Wm. Norris	1837
*Benjamin Franklin	Wm. Norris	1836
*Robert Morris	Wm. Norris	1836
*James Madison	Wm. Norris	1837
*La Fayette	Wm. Norris	1837
*United States	Wm. Norris	1837
*Constitution	Wm. Norris	1837
Mountaineer	McClurg Wade & Co.	1837
Pennsylvania	McClurg Wade & Co.	?
*Pittsburgh	McClurg Wade & Co.	1835
*Back Woodsman	McClurg Wade & Co.	1836
Allegheny	E. A. G. Young	1835
Tennessee	E. A. G. Young	1833
*Comet	E. A. G. Young	1836
Boston	Mill Dam Foundry	1835

Von Gerstner states there were nine Norris engines on the road but fails to mention the others. The engines with a * were transferred from the Philadelphia & Columbia R. R. according to their report of 1838. The U. S. Report lists a "Delaware" built by E. A. G. Young of Newcastle, Del. in 1833 and this may be the "Tennessee" on the above list. We also find a "Conemaugh" built by McClurg Wade & Co. of Pittsburgh in 1836 which can be properly added to the above.

Von Gerstner visited the Franklin R. R. and found two locomotives working that road and one on the Sugar Loaf R. R., the latter may have been owned by the Hazelton Coal Co. On the Corning & Blossburg R. R. he states there were four engines tho' two of them must have been on order:

Chemung	Albany Iron Works	1839
Tioga	Baldwin	1839
Canisteo	Baldwin	1840
Conhocton	Baldwin	1841

Philadelphia, Wilmington & Baltimore R. R.

Susquehanna	25 hp	High	Locks & Canal Co.	1836
Wilmington	25 hp	High	E. Bury	1837
Maryland	25 hp	High	Baldwin	1836
Delaware	25 hp	High	Baldwin	1836
Brandywine	25 hp	High	Baldwin	1837
Christiana	25 hp	High	Baldwin	1838
Gen. Washington	25 hp	High	Wm. Norris	1837
Newcastle	25 hp	High	Newcastle Co.	1838
Mathew Newkirk	All	High	Wm. Norris	1837
Nicholas Biddle	15	High	Wm. Norris	1837
Lady Washington	to	High	Wm. Norris	1837
Napoleon	20	High	Wm. Norris	1837
Baltimore	hp	High	Wm. Norris	1837
Lewis Brantz		High	Wm. Norris	1837

Newcastle & Frenchtown R. R.

If von Gerstner visited this road I failed to find it in his records. I am listing the locomotives as they appear in the U. S. Report of 1838.

Delaware	38 hp	High	R. Stephenson	1831
Pennsylvania	40 hp	High	R. Stephenson	1832
Virginia	40 hp	High	R. Stephenson	1833
Phoenix	38 hp	High	R. Stephenson	1832
Newcastle	40 hp	High	Newcastle Shops	1834
Comet	38 hp	High	Newcastle Shops	1835

Baltimore & Ohio R. R.

On this road von Gerstner found 16 locomotives at work on the main line and 4 on the Washington branch. The U. S. List records 18 of these engines and the other two have been added:

Arabian	All	High	Phineas Davis	1834
George Washington	12	High	Phineas Davis	1834

John Adams	to	High	Phineas Davis	1835
Thomas Jefferson	15	High	Phineas Davis	1835
James Madison	hp	High	Phineas Davis	1835
James Monroe		High	Phineas Davis	1835
John Q. Adams		High	Phineas Davis	1835
Andrew Jackson		High	Phineas Davis	1836
John Hancock		High	Gillingham & Winans	1836
Phineas Davis		High	Gillingham & Winans	1836
George Clinton	All	High	Gillingham & Winans	1836
Martin Van Buren	12	High	Gillingham & Winans	1836
Benj. Franklin	to	High	Gillingham & Winans	1837
Lafayette	15	High	Wm. Norris	1837
Wm. Paterson	hp	High	Gillingham & Winans	1837
Isaac McKim		High	Gillingham & Winans	1838
Philip E. Thomas		High	Wm. Norris	1838
Mazepa		High	Gillingham & Winans	1838
Jos. W. Patterson		High	Wm. Norris	1838
William Cooke		High	Wm. Norris	1838

Baltimore & Susquehanna R. R.

Von Gerstner reports 12 locomotives on this road, the first arriving in 1832 from Robert Stephenson and followed by two more from the same builder, 8 from the Locks & Canal Co. and 1 from Coleman Sellars & Son.

Herald	R. Stephenson	1832
Chieftain	R. Stephenson	1838
Samson	R. Stephenson	1838
Maryland	Locks & Canal Co.	1837
Susquehanna	Locks & Canal Co.	1837
Pittsburgh	Locks & Canal Co.	1838
Howard	Locks & Canal Co.	1837
York	Locks & Canal Co.	1839
Baltimore	Locks & Canal Co.	1837
Pennsylvania	Locks & Canal Co.	1838
Osceola	Locks & Canal Co.	1838
Atlantic	Coleman Sellars	1839

Annapolis & Elk Ridge R. R.

Von Gerstner reports two Baldwin engines on this road:

Carroll	Baldwin	1840
Annapolis	Baldwin	1840

Doubtless they were delivered after his visit.

Winchester & Potomac R. R.

He reports 4 Bury and 1 Norris engine working this road:

Tennessee	E. Bury	1835
Old Dominion	E. Bury	1835
Lilly of the Valley	E. Bury	1836
Pocahontas	E. Bury	1836
Farmer	Wm. Norris	1838

This road is not listed in the U. S. Report.

Portsmouth & Roanoke R. R.

Nos 1-2	14 hp	High	R. Stephenson	1834
3-4	14 hp	High	R. Stephenson	1836
5	14 hp	High	E. Bury	1835
6	14 hp	High	Wm. Norris	1838

Von Gerstner reports 5 English engines and 2 Norris engines at the time of his visit in 1839. There is no doubt that the locomotives of this road carried names and it seems rather singular that they were overlooked by the U. S. Agent. Some day perhaps the correct names will be learned.

Petersburg R. R.

As published in the U. S. Report, the information is sometimes misleading. The fact is that this road furnished the Greenville & Roanoke and Raleigh & Gaston roads with their motive power. The U. S. Agent properly filed these engines under one return but they were listed in such a way that most of the engines would be assumed to have belonged to the Raleigh & Gaston R. R. Von Gerstner accounts for 10 engines imported from England, 4 from Wm. Norris and 1 built in Richmond. Thanks to Mr. Thomas Norrell, I'm able to account for all but four of these locomotives:

Roanoke	E. Bury	1832 (sold to R. F. & P. R. R.)
Pioneer	Rothwell	1832 —sold Bangor & Piscataquis R. R. (?)
Liverpool	E. Bury	1832
Appomattox	E. Bury	1833
Meherrin	E. Bury	1833
Nottoway	Rothwell & Hick	1833
Staunton	E. Bury	1834
Petersburg	E. Bury	1834
Gaston	C. Tayleur	1836
Raleigh	C. Tayleur	1836
Roanoke (2nd)	E. Bury	1837
Virginia	B. Hick	1837
Yadkin	D. I. Burr	1837 First locomotive built in Virginia

This leaves four Norris engines which so far, we have been unable to account for.

City Point R. R.

Powhatan 35 hp High Wm. Norris 1838 9x16" 48" 7 tons

This is the only engine in the U. S. List but von Gerstner states there were two Norris engines on the road in 1839, 8 $\frac{1}{4}$ x16" cylinders.

Richmond, Fredericksburg & Potomac R. R.

Roanoke	9 hp	High	E. Bury	1832 (from Petersburg
Richmond	14 hp	High	R. Stephenson	R R) 1834
Augusta	11 hp	High	E. Bury	1835

Fredericksburg	11 hp	High	E. Bury	1835
American	15 hp	High	Newcastle Co.	1836
Potomac	14 hp	High	B. Hick	1836
Louisa	14 hp	High	B. Hick	1837
Washington	14 hp	High	T. W. Smith & Co. Alexandria, Va.	1837
Jefferson Virginia	14 hp	High	Sumner Graves & Day	1837
	14 hp	High	Wm. Norris	1838

Von Gerstner reports 8 locomotives imported from England and 4 built in America. The eight English-built locomotives are not all accounted for and we lack another built in this country. Sumner, Graves & Day were a firm of importers and we have no knowledge of the builder of the "Jefferson."

Richmond & Petersburg R. R.

John Randolph	14 hp	High	E. Bury	1837
Sheppard	14 hp	High	E. Bury	1837
Stafford	14 hp	High	E. Bury	1837
Patrick Henry	14 hp	High	E. Bury	1837
Robert Morris	14 hp	High	Rothwell, Newcastle	1838
Oliver Evans	14 hp	High	Rothwell, Newcastle	1838

Von Gerstner reports 4 Bury engines and 1 Hick. Possibly the road parted with one of the last two engines between the time of the visit of the U. S. Agent and that of von Gerstner.

Wilmington & Raleigh R. R.

Von Gerstner reports 2 Stephenson, 3 Burr, 3 Norris and 2 Baldwin engines working this road. They appear to be as follows:

Wayne	R. Stephenson	1837
Nash	R. Stephenson	1837
Halifax	D. I. Burr	1838
Sampson	D. I. Burr	1838
Greene	D. I. Burr	1838
Lenoir	Baldwin	1839
Johnston	Baldwin	1839
Edgecombe	Wm. Norris	1839
Duplin	Wm. Norris	1839
Bladen	Wm. Norris	1839

South Carolina Canal & R. R. Co.

The U. S. Report lists 27 locomotives on this road and closes with the statement—"there have been fifteen other locomotives, built in the United States and England, which have been cut up and used as materials for repairing others, after having been on the road from one to three years." Von Gerstner found 7 Baldwin, 8 from Eason & Dotterer and 15 in all from England. With the exception of one English-built locomotive, all are accounted for as follows:

(Best Friend of			
(Charleston	West Point Foundry, New York	1830	Re "Phoenix"
West Point	West Point Foundry, New York	1831	
South Carolina	West Point Foundry, New York	1832	
Charleston	West Point Foundry, New York	1833	
Barnwell	West Point Foundry, New York	1833	
Native	Eason & Dotterer, Charleston	1833	
Edisto	West Point Foundry	1833	
Hamburg	West Point Foundry	1833	
E. L. Miller	Baldwin	1834	
Augusta	E. Bury, Liverpool	1834	
Georgia	E. Bury, Liverpool	1834	
Columbia	Fenton & Co., Leeds	1834	
Wm. Aiken	R. Stephenson	1834	
E. Horry	R. Stephenson	1834	
Edgefield	R. Stephenson	1834	
Kentucky	C. Tayleur, Liverpool	1835	
Cincinnati	C. Tayleur, Liverpool	1835	
Allen	C. Tayleur, Liverpool	1835	
Sumter	R. Stephenson	1835	
Marion	R. Stephenson	1835	
Ohio	R. Stephenson	1835	
H. Shultz	Rothwell & Hick, Bolton	1835	
Washington	Eason & Dotterer	1835	
Tennessee	Eason & Dotterer	1836	
Lafayette	Eason & Dotterer	1836	
Franklin	Thomas Dotterer	1836	
Philadelphia	Baldwin	1836	
E. J. Ravenel	Baldwin	1836	
William Penn	T. W. Smith & Co., Alexandria	1837	
Alexandria	T. W. Smith & Co., Alexandria	1837	
Edisto	Baldwin	1837	
Barnwell	Baldwin	1837	
Moultrie	Thomas Dotterer	1837	
Vulcan	McLeish & Smith, Charleston	1837	
Charleston	McLeish & Smith, Charleston	1837	
Branchville	Eason & Dotterer	1838	
Reading	Eason & Dotterer	1838	
Line Street	Eason & Dotterer (?)	1838	
Robert Y. Hayne	Baldwin	1839	
John Ravenel	Baldwin	1839	
Buena Vista	Baldwin	1839	

Central R. R. & Banking Co. of Georgia

The U. S. report lists three locomotives, von Gerstner reports 4 from Baldwin and 4 from Rogers. If so, two must have been on order as they were not delivered until 1840:

Tennessee	Baldwin	1837
Georgia	Baldwin	1837
Macon	Baldwin	1838
Savannah	Baldwin	1839
John Bolton	Rogers K & G	1839
Oconee	Rogers K & G	1840
Oglethorpe	Rogers K & G	1840
Gordon	Rogers K & G	1843

Von Gerstner could not have seen the last three engines.

Georgia R. R.

Twelve engines reported working on this road, all Baldwins.

Georgia	Baldwin	1836
Pennsylvania	Baldwin	1836
Tennessee	Baldwin	1837
Florida	Baldwin	1837
Louisiana	Baldwin	1837
Kentucky	Baldwin	1837
Mississippi	Baldwin	1838
Alabama	Baldwin	1838
W. G. Dearing	Baldwin	1838
Virginia	Baldwin	1838
Wm. Cummings	Baldwin	1839
James Camak	Baldwin	1839

Strange as it may seem this road was overlooked by the U. S. Agent.

Monroe R. R.

Von Gerstner states it was worked with 2 Baldwin and 1 Norris locomotive :

Macon	Baldwin	1838
Not Named	Baldwin	1838

The identity of the Norris engine is unknown.

Tuscumbia, Cortland & Decatur R. R.

Not listed in the U. S. Report and von Gerstner states it was worked by four locomotives. The annual reports list :

Fulton	E. Bury	1834
Comet	West Point Foundry	1835
Triumph	Baldwin	1835
Pennsylvania	?	1835

The last engine was purchased from the Philadelphia, Germantown & Norristown R. R. and the date is the date placed in service on the T. C. & D. Its identity on the P. G. & N. is unknown.

Mobile & Cedar Point R. R.

Eclipse	36 hp	High	Baldwin	1836
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Tallahassee R. R.

Not given in the U. S. Report and von Gerstner states it is worked by two locomotives but fails to mention any details.

St. Joseph & Lake Wimmico R. R.

St. Joseph	12 hp	High	Baldwin	1836
Wimmico	12 hp	High	Baldwin	1837

Von Gerstner states there were two other engines on this road but fails to give any details.

Pensacola & Montgomery R. R.

Von Gerstner states there were two engines on this road.

The Rogers records list a locomotive ordered by Mr. Abner McGehee of Florida, named the "Abner McGehee" delivered to the Montgomery R. R., Apr. 26, 1839. This was probably one of the two engines, what the other was, I do not know.

Pontchartrain R. R.

Pontchartrain	36 hp	High	Rothwell & Hick	1832
Creole	20 hp	High	E. Bury	1833
Fulton	16 hp	High	B. Hick & Son	1834
Orleans	16 hp	High	E. Bury	1836

New Orleans & Nashville R. R.

Not Named	32 hp	High	H. R. Dunham & Co.	1836
Not Named	38 hp	High	Newcastle Co.	1836
P. H. Caldwell			Baldwin	1839

It seems more than likely that the first two engines bore names altho' they escaped the notice of the U. S. Agent. Von Gerstner reports three engines on this road.

Carrolton R. R.

Enterprise	30 hp	High	Wm. Norris	1836
Industry	30 hp	High	Wm. Norris	1836
Lafayette	28 hp	High	Wm. Norris	1837
Washington	28 hp	High	Wm. Norris	1837
New Orleans	34 hp	High	B. Hick & Co.	1838

Lake Borgue R. R.

Von Gerstner states there was one locomotive on this road but fails to mention any details.

Clinton & Port Hudson R. R.

He states there were two Baldwin and 1 Norris engine on this road. The Norris is unknown but the Baldwin's were as follows:

Port Hudson	Baldwin	1838
Clinton	Baldwin	1839

West Feliciana R. R.

Woodville	Baldwin	1836

The only locomotive according to von Gerstner.

Alexandria & Cheneyville R. R.

Two locomotives on this line according to von Gerstner but we are without any details.

Mississippi R. R.

Hercules	Baldwin	1839
Natchez	Baldwin	1839

Von Gerstner states there were two other engines but fails to give any details.

Vicksburg & Jackson R. R.

Mazeppa	Baldwin	1836
Mississippi	Baldwin	1836
Warren	Rogers	1839

In addition to the above builders, von Gerstner states there was another engine from the Newcastle Mfg. Co. in service.

Lexington & Ohio R. R.

Nottoway	10 hp	High	In England	1836
Elkhorn	10 hp	High	In England	1836

The U. S. Report of 1838 states the above two engines have been in Kentucky two years, possibly they came from other roads rather than directly from the builder. Von Gerstner states that one was a Bury, the other a Stephenson and if the builder is applied in the order he mentioned them, then the "Nottoway" was the Stephenson and the "Elkhorn" was the Bury.

Mad River & Lake Erie R. R.

Sandusky	Rogers K & G	1837
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Von Gerstner adds the engine had 11x16" cyl. and weighed 9½ tons.

Madison & Indianapolis R. R.

Not visited by the U. S. Agent but von Gerstner found the

Madison	Baldwin	1837
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in service.

Michigan Central R. R.

Ironsides	30 hp	High	H. R. Dunham & Co.	1836
Detroit	30 hp	High	Baldwin	1837
Michigan	30 hp	High	Baldwin	1838
Ann Arbor			Baldwin	1837
Pittsburgh	30 hp	High	McClurg Wade & Co.	1837

Five engines were found by von Gerstner on this state owned property, one more than by the U. S. Agent.

Erie & Kalamazoo R. R.

Toledo	15 hp	High	Baldwin	1837
Adrian	15 hp	High	Baldwin	1837

Detroit & Pontiac R. R.

Detroit	Baldwin	1838
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Northern Cross R. R.

Illinois Experiment	Baldwin Rogers K & G	1838
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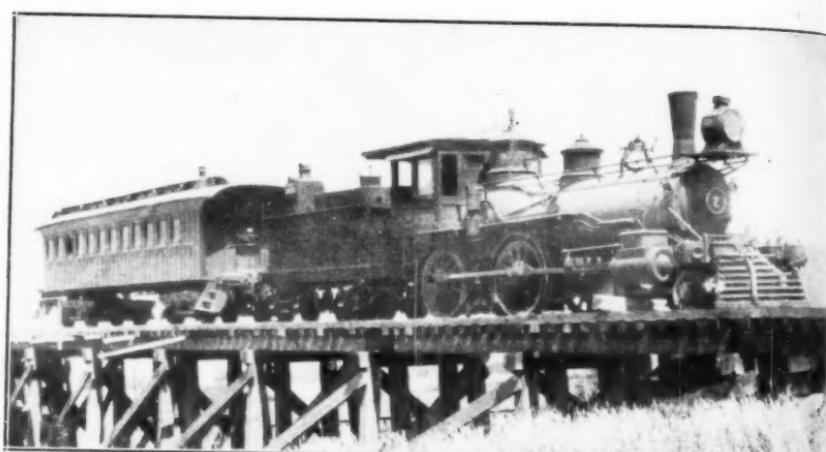
The last engine was ordered by Mr. Charles Oakley for the South Carolina Canal & R. R. Co. but the engine was diverted to the above road.

Two engines that von Gerstner evidently failed to observe were the two Stephenson locomotives on the Wrightsville, York & Gettysburg R. R., later Baltimore & Susquehanna R. R., the "Harrisburg" and "Wrightsville," built in 1836. For this he may be forgiven because the U. S. Report of 1838 makes no mention of either road or locomotives.

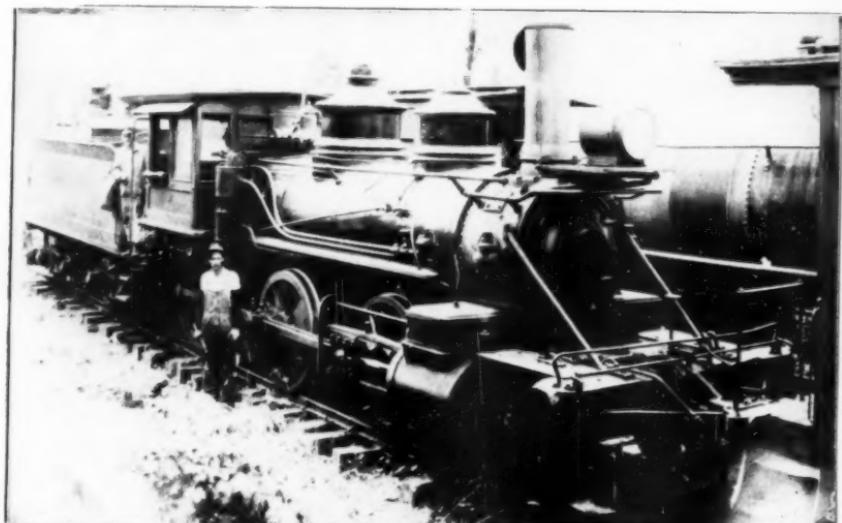
I think it can be safely assumed that von Gerstner concluded his observations at the close of 1839. It is possible that he erred, either in reporting the number on the road by including some that were ordered or the road contemplated purchasing. On the other hand, it checks very closely with the U. S. List of 1838. Publication of this article by no means closes this subject. I hope it will be the means of further discussion and of bringing to light further facts and when the time comes perhaps we can add to the above or clear up some of the unknown factors that exist for the present.

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Carlton & Coast R. R. #2. Ex-S. P. 1484; Ex-C. P. 1200; Ex-C. P. 1137; Ex-C. P. 127.



—Courtesy of H. H. Arey.

Carlton & Coast R. R. #1604. Ex-S. P. 1604.

The Carlton and Coast Railroad

By ROLLIN WOOD and RANDALL V. MILLS

In 1909, the little town of Carlton, Oregon, in the Yamhill valley southwest of Portland, was becoming littler and littler. Before it was nothing but a dismal outlook for the future; business buildings were closed, residences stood empty, the West Side trains of the Southern Pacific four little business at the depot, because the main industry of the town, the Carlton Consolidated Lumber Company, stood idle most of the time, its saws quiet, and its pond empty. But it was not the fault of the mill; the mill brought its logs down from the slopes of the Coast Range on the Yamhill River, and the river had been low for a long time, leaving logs perched on sand bars and the pond merely a quiet pool. The situation seemed hopeless; even with a good rainy winter the Yamhill simply did not flow as much as it once had, when steamboats plodded its course nearly to Carlton. Carlton was evidently on its way toward becoming a ghost town; however, a few interested people held out hope.

Early in 1910, Fred Russell, W. S. Dennis, and S. B. Linthicum, owners of the Carlton Consolidated Lumber Company, met to make a final move to save the town and the mill. Out of the meeting came the organization of the Carlton and Coast Railroad on February 10, 1910, with a capital stock of half a million dollars and an additional bond issue of a quarter of a million. The railroad would save the town because it would replace the river log drives and rafts and permit logs to be brought down from the hills during any season. The mill could operate without worry about water. Carlton would be able to ship its lumber to any place in the world at any time. Moreover, the projected railroad had a second purpose. Due west on the coast the Tillamook country, rich in timber and dairying and rapidly growing, still waited impatiently for a railroad. Several lines had been surveyed, but so far the only tangible move was being made by the Pacific Railroad and Navigation Company, whose line headed north and west out of Hillsboro to Wheeler on the coast and then dropped south into Tillamook. But in 1910 the PRR&N was not operating as a public carrier, and its track was still short of Wheeler. When it finally reached its objective, it would have nearly a hundred miles of line. From Carlton, a railroad would require less than fifty to reach Tillamook, and the going would be easier. Had the Carlton and Coast ever reached tidewater, its story might have been different.

So the Carlton and Coast was chartered to build from Carlton on the West Side line of the Southern Pacific to Tillamook; money, unfortunately was scarce—the promoters themselves were not able to raise enough funds for the whole job immediately—and the building went on slowly during 1911. From Carlton the line followed the level valley of the Yamhill for seven miles to Pike, on the edge of the hills, where it entered a gorge and climbed by grades, nowhere greater than fractionally over three percent, to Tillamook Gate, where it stopped only three

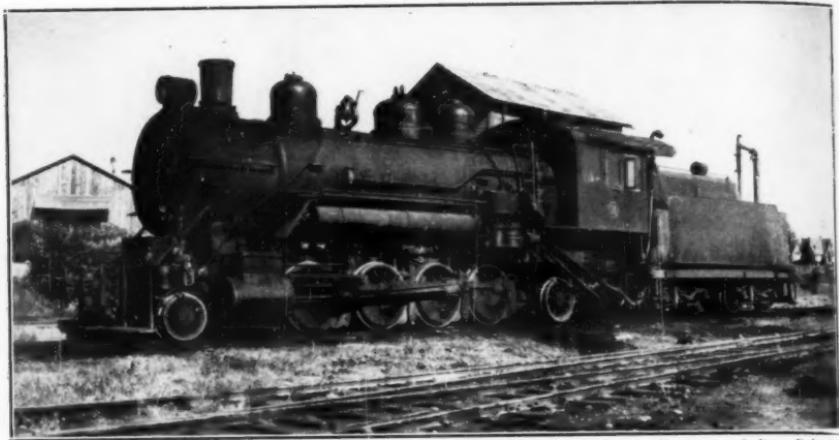
miles short of the Coast Range, and 13.6 miles from Carlton. There the work ceased, because it was necessary to put the line into operation hauling logs from the timber stands at the Gate down to the Consolidated mill at Carlton. For nearly a year the road moved logs before it was officially turned over to the company on July 1, 1912. At that time the Carlton and Coast had a well ballasted track laid with fifty-six to sixty pound rail, over which it operated its three locomotives, two passenger cars, five freight cars, and twenty flat log cars. The total cost of the road, as reported by the contractors, had been \$324,933.15, and that of the equipment \$27,579.21; to this was added a general expense item of \$69,781.35, making the line cost \$29,823 per mile.

New men appeared on the Board of Directors, indicating that Carlton had had to call for outside financing; of the original three, one had been killed in an early automobile accident not long after work started, and another by 1912 was taking little interest in the road.

During the first year, business was slight and expenses were high, especially for maintaining the soft track and for the interest paid on the bonds. When the company made its first report, it showed a net loss of \$39,152.45 but hoped for a better future. Revenue had amounted to a mere \$8,981, paid on seventeen thousand tons of freight, of which eleven thousand tons had been logs moved out of the woods. As long as the Carlton and Coast lasted, logs would be its main source of traffic. The second year was somewhat better, the loss being only two thousand dollars, while traffic revenues increased sharply, with logs again amounting to ninety-five percent of the tonnage. In 1914 traffic had picked up enough to warrant adding a third passenger coach, like the others second-hand, and more flat and box cars. To save money, passenger trains were discontinued, and all trains ran as mixed. Passengers did not flock to the Carlton and Coast, although at the time Oregon was being netted by new interurban lines; that the C&C went nowhere except to a logging camp probably accounted for the lack of patronage, and the old red coaches at the ends of the trains were crowded only on week-ends when the loggers came into town. Yet by 1917, just before the World War boom, the road carried only 149 passengers, and tonnage fell off to 7,500. No matter whether times were good or bad, the road lost money; some of the mysteries of high finance and interest on bonds were revealed annually to the sad Board of Directors. A road thirteen miles long that must try to pay \$12,000 annually will not have much left for dividends.

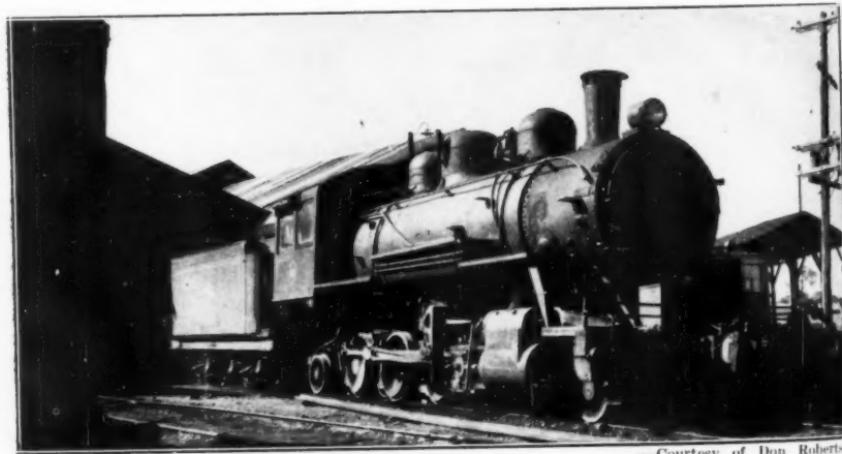
After the war the losses rose until in 1923 they amounted to the staggering total of \$68,417; discouragingly, traffic increased, too, but seemed to make little difference. With no appreciable source of revenue, except logs, and with no developed farming country to depend upon for steady freight, the line rose, but mainly fell, with the demand for lumber. And to make the going harder, the Board of Directors in an attempt to show a better profit from the Consolidated Mill, which they also owned, cut the tariff on logs. It was robbing Peter to pay Paul. Still the end of the track was at Tillamook Gate and a good thirty miles from the potential traffic from the cheese plants at Tillamook.

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—Courtesy of Don Roberts.

Carlton & Coast R. R. #11 at Carlton, Oreg.



—Courtesy of Don Roberts.

Carlton & Coast R. R. #55 at Carlton, Ore.

During the middle twenties a newcomer took an interest in the Carlton and Coast, J. C. Flora, owner of the Flora Logging Company, who bought a controlling share of the stock and proceeded to cut the net loss from \$68,417 in 1923 to a mere \$495 in 1924. In California a building boom had put a premium on Oregon lumber, and the Flora Logging, which owned heavy stands of timber in the Coast Range, adjacent to the C&C's line, was kept busy supplying mills with logs. Without mills itself, the Flora company acted as a wholesale producer of logs which it sold to independent mills which, in turn, did not own their own forest lands. As long as the California boom lasted, the Carlton and Coast did well; in 1925 it achieved for the first, and the only, time in its career a net profit of \$8,592. But business sagged and a familiar deficit showed again in 1926. At the height of its prosperity, the company employed fifty men and maintained its own shops at Carlton where most of the employees, and, until the Flora company instituted absentee control, most of the officials lived.

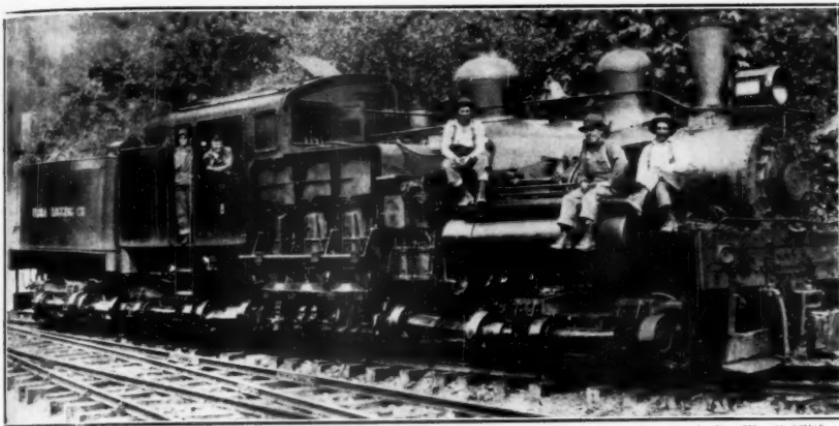
The financial problems of the years after 1929 hit the Carlton and Coast hard, until in 1932 it applied for a loan from the Reconstruction Finance Corporation, the funds to be used to pay the matured first mortgage bonds held by the Carlton Consolidated Lumber Company, for the construction of and extension into new forest area, for the purchase of needed new and additional equipment, and for the purchase of a logging road owned by the Flora Logging Company. The last item the Interstate Commerce Commission rejected, lopping off \$7,000 from the original estimate of \$556,000 needed. Finally the agreement for the loan was made by the Reconstruction Finance Corporation and the railroad, the loan being assigned to the following uses: \$250,000 for principal on the bonds, \$199,000 for construction of additional mileage, \$80,000 for the purchase of eighty new logging cars from the Flora Logging Company and \$20,000 for the purchase of a new locomotive. As collateral security, the R. F. C. took a first mortgage on all property of the railroad company.

The first result of the loan was to place complete control in the hands of the Flora Company when the bonds were retired. Then work on the proposed extension began; joining the original line at Pike station, the new track went for about twenty-one miles to Cody Station where it joined a logging railroad of the Flora outfit and opened a new tract for cutting. Business picked up again on the road, especially because the logging company maintained a large crew camp at Cody and shipped all supplies by rail. Passenger traffic, which had never strained either of the two old coaches, suddenly spurted, and the company found it necessary to purchase additional equipment. As many logging and lumbering roads in the Pacific Northwest purchased unused interurban coaches from the rapidly dying electric lines, so did the Carlton and Coast: from the Willamette Valley Railway, which gave up its passenger service early in the thirties, came a combination baggage and passenger and a passenger coach, arch-roofed, light and neat, and from the Oregon Electric Railway came a long, heavy wooden interurban coach. With these in service, the C&C was able to retire its remaining open platform

wood coach. When the week-end came, the loggers at the woods camp were ready for rest; sometimes, not wanting to wait for a train, or merely looking for a quick way of getting to the terminal, they would climb aboard a flat car, let off the brakes, and coast gaily down the curving logging spur from their woods camp to Cody. At Cody they piled aboard the three interurbans, hauled by one of the road's light Mikados, and headed for Carlton. Then were the coaches jammed with the men, resplendent in the characteristic outfit of their calling: staggered tin-pants, wool shirts, and battered red felt hats. From Carlton, they scattered to spend their week-ends at their homes or among the delights of not-too-distant Portland's now mild skid-row, returning to the camp on the late train on Sunday night. On week days a home-made gasoline car with seats facing outward like an old-fashioned cable grip car, served for passenger and express service. Package freight moved in a curious four-wheeled box car which was oddly European in appearance. Five hundred men, however, riding a round trip each week-end, provided a respectable passenger business, and the Carlton and Coast's future, despite the regular annual losses, looked good.

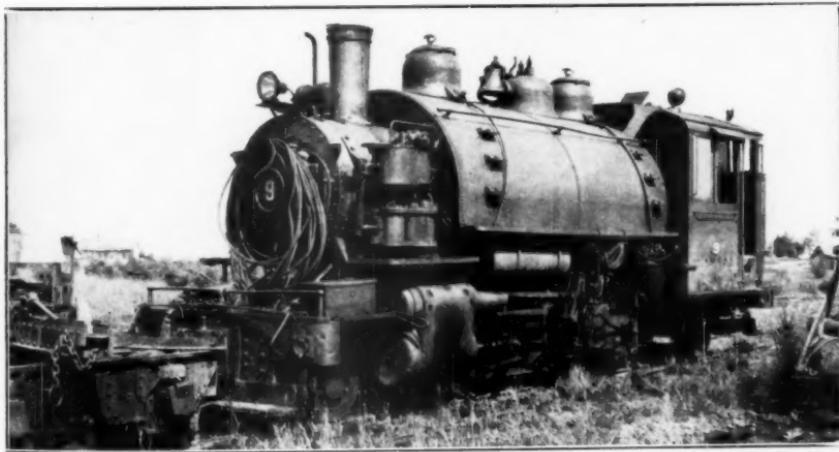
The summer of 1939 was dry and hot. Crews in the woods began work at four in the morning and continued until the humidity fell to the danger point, usually around noon. The underbrush was like tinder, crisp and yellow. No rain came over from the coast. Spot fires broke in the woods now and again, but the Forest Service stopped them before they spread far. Business on the railroad lagged; as new county roads pushed into the hills, the loggers bought cars and drove to work, and in February of 1939 the C&C had abandoned passenger service and shoved its three coaches on a spur beside the Carlton Manufacturing Company's loading dock. Almost all logging stopped.

Finally a bad fire broke not far north of the Flora Company's holdings, up around the Wilson River country. Quickly it spread, fanned out, climbed the ridges, until the whole Coast Range back of Tillamook became a great sheet of fire. A shift in the wind sent the blaze south, and in a few hours nothing remained but blackened snags in the Flora Company's holdings. When the fire died and crews went out to check the damage to the road, they found twenty-six timber trestles gone, and the forest destroyed for all except some salvage logging. As a railroad with a main line, the Carlton and Coast quietly gave up; without any timber to move, and any logs to turn over to the Southern Pacific, it had practically no business. The Flora Company's string of locomotives, geared and tank, brought out of the forest before the fire, rusted on a spur. Now and then the new Baldwin, No. 55, steamed up and moved a few cars over the mile of line between the Southern Pacific and the Carlton Manufacturing Co., which was still running. Then, early in 1940 came the final blow: fire broke out in the Carlton Manufacturing Co., and the fire crews were rapidly driven back helpless to save anything. By way of an ironic *coup de grace* the fire swept across the loading dock and burned to the trucks the three old interurban cars. When the fire was over, the Carlton and Coast still had its shops, its



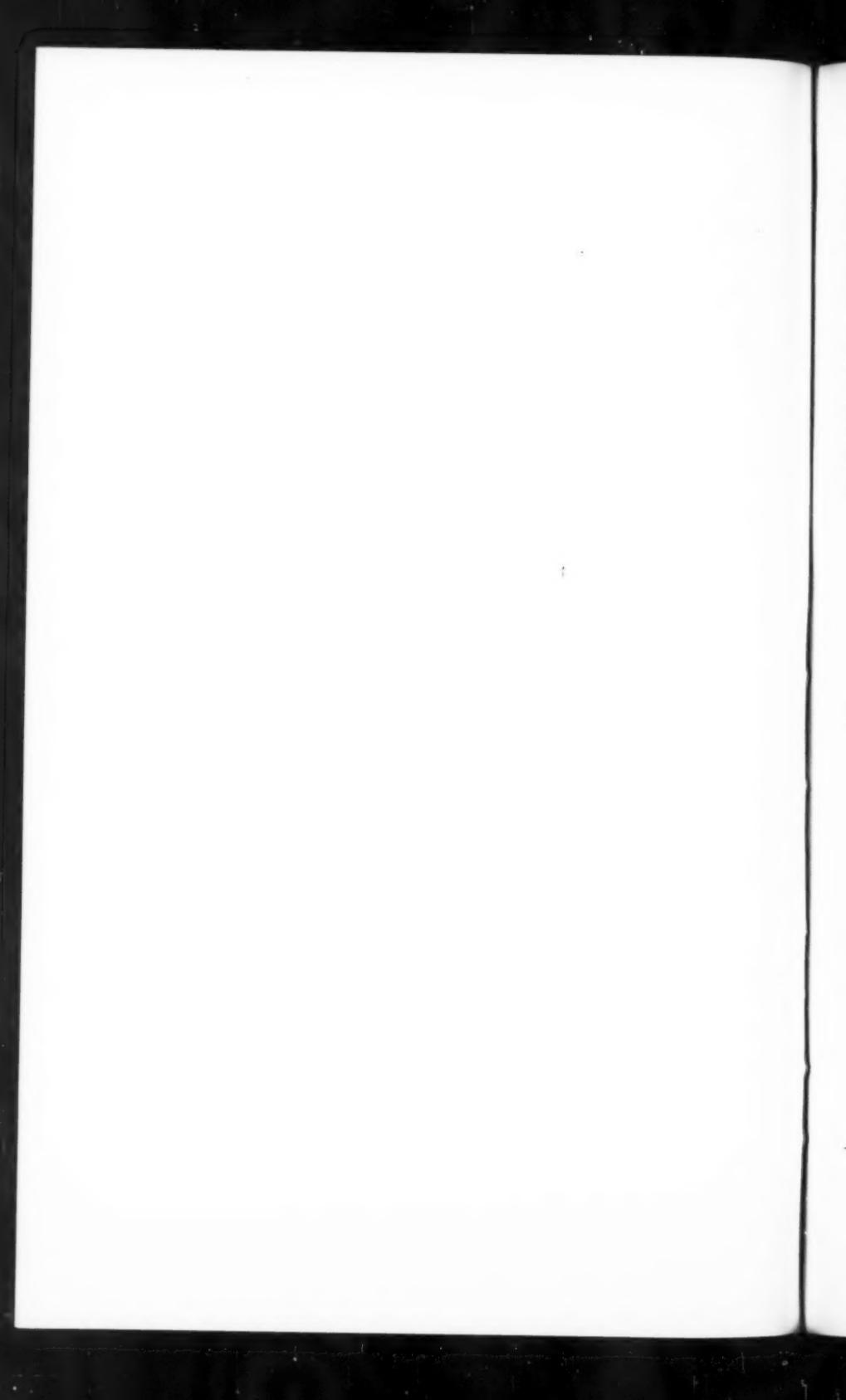
—Courtesy of B. W. Griffiths.

Flora Logging Co. #8. Lima 1920.



—Courtesy of H. H. Arey.

Flora Logging Co. #9 at Carlton, Oregon. 2-6-2T. Vulcan 3503. 1925.



three engines, its retired passenger coach, a couple of gas cars, a crane, the four-wheeled box car, and a string of logging trucks and skeleton ears, but it had no business. Even its switching business was gone. Finally the Carlton and Coast admitted the inevitable, and the Reconstruction Finance Corporation took over the road, moving the records to Portland and selling part of the equipment.

But the original idea died hard; the Carlton and Coast still had the shortest route between Portland and Tillamook, and the R. F. C., owners of the right-of-way, offered to donate it to the county for a highway which would go from Tillamook Gate over the crest and down to the ocean, roughly following the original road and shortening the distance from eighty miles to forty-eight miles. Possibly at some time the road will be built. But the Carlton and Coast, child of a town's ambition and strapping young logger of the lumber industry, was cut off in its prime by a force not common to cause railroad fatalities—fire.

ROSTERS

Carlton and Coast Railroad Co.

(Organized Feb. 24, 1910)

- 1 — 2-6-0 Baldwin #6256 Sept. 1882. Built as OR&N 51; renumbered OR&N 18 in 1889, UP 1382 in 1890, OR&N 19 in 1894. Purchased by Carlton Lumber Company, February 1, 1910. 50 17/24 77760 14050.
- 2 — 4-4-0 McKay & Aldus 1868. Built as Central Pacific 127, renumbered SP 1137, renumbered 2-1200, renumbered 1484. Sold to Carlton & Coast September 11, 1911.
- 1604 — 2-6-0 Baldwin #6700 1883. Built for Oregon & California 32; renumbered SP 1516, renumbered 1604. Sold to C&C February 21, 1913. Scrapped 1938.
- 11 — 2-8-2 Baldwin #41299 1914. Built for Mason County Logging Company #9.
- 55 — 2-8-2 H. K. Porter #6860 1924. Purchased new.

Carlton Logging Company and Flora Logging Company

- 3 — 2-8-2 American #65378 1924. Former Sugar Pine Lumber Co. #3; sold to Consolidated Timber Co., Glenwood, Oregon.
- 4 — Shay Lima #3009 1916. Former Siems-Carey—H. S. Kerbaugh Corp. #701. Sold to Diamond Match Co., #106; Sterling, California.
- 6 — Shay
- 7 — Shay Willamette #10. Purchased new.
- 8 — Shay Lima #3144 1920. Former Booth-Kelly Lumber Co. #7.
- 50 — Shay Lima #2745 1914. Purchased new by Carlton Consolidated Lumber Co.
- 70 — Shay Lima. Former Twin Falls Logging Co.; wrecked three times; sold to Clyde Equipment Co., Portland, Ore.
- 9 — 2-6-2t Vulcan #3503 1925. Purchased new. Sold Kaiser Vancouver Shipyards, 1942. Records show factory number was 3503, boiler number 3977.

Information from Mr. Dan Roberts & Mr. Herbert L. Arey, of Portland, Ore.

The Bath & Hammondsport R. R.

By GUSTAVE W. ERHARDT

The first attempt to connect Bath with Hammondsport, N. Y., is recorded in a folder in the Transportation Library of the University of Michigan, in which is set forth the possibilities of the country to be served by the Bath & Crooked Lake R. R. The six foot gauge Erie R. R. had completed its line into Rochester, N. Y. and prospective roads were everywhere. This railroad never passed beyond the paper stage for it was not until January 17, 1872, that the Legislature of the State of New York incorporated the Bath & Hammondsport R. R.

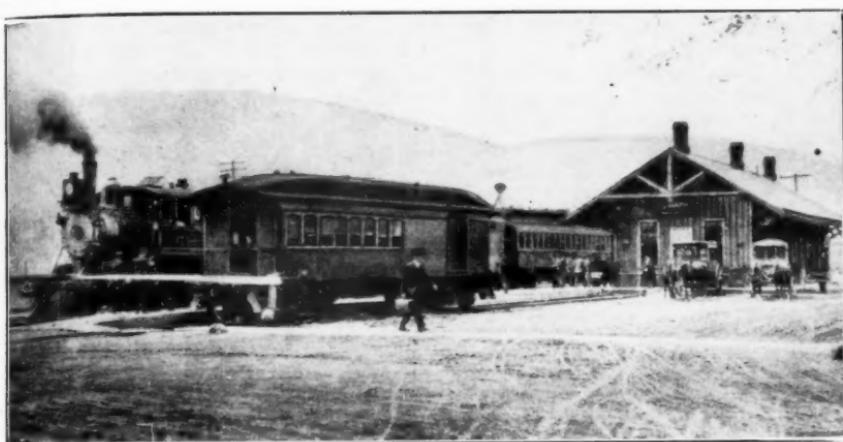
This called for the building of a three foot gauge railroad between Bath and Hammondsport, N. Y., a distance of $9\frac{1}{2}$ miles. Permission was also given to build to Hornellsville, twenty miles west through the hills but this line suffered the same fate as the proposed lines to connect the Cohocton and Canisteo river valleys in that they were never built.

Bath is in Steuben County, about twenty miles north of Corning and is on the main line of the Lackawanna and on the Erie R. R. Hammondsport is about nine miles northeast of Bath, at the foot of Lake Keuka, one of western New York's famous Finger Lakes.

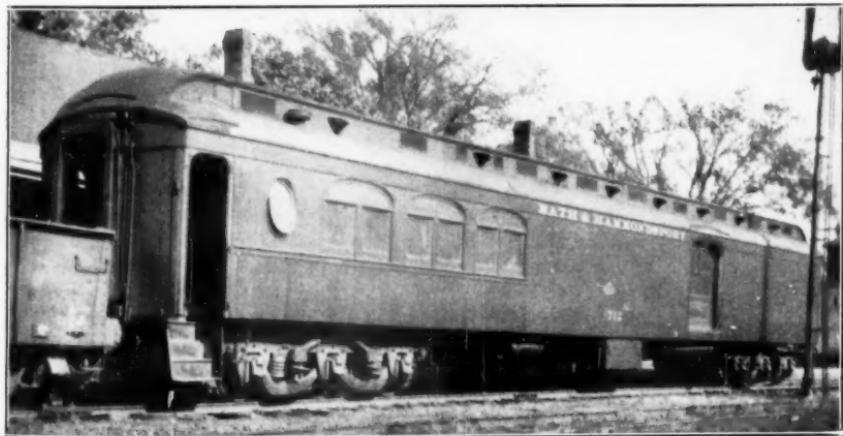
Connection is made with the Erie R. R. at their depot in Bath. For about a mile the B. & H. parallels the Erie, then turns northeast, climbs a ridge and tops it as it crosses East Washington St. on the eastern outskirts of Bath. The road descends into Pleasant Valley, past the County farm, through the grounds of the State Fish Hatchery and the hamlets of Cold Springs, Hermitage, Rheims and Pleasant Valley until it reaches Hammondsport on Lake Keuka.

Grading of the line commenced in the summer of 1872 and was completed the following year. Before any rail was laid, the road was leased to Mr. Allen Wood, of Bath, on December 15, 1874 for a period of ninety-nine years. The following spring, rail laying commenced with a 40-lb. rail and the line was opened for operation on June 30, 1875. At the close of that year, the road owned two mogul type locomotives, two passenger cars, two baggage and express cars and four freight cars. The cost of the road was \$104,806.62 and of the equipment \$18,187.04. By September 30, 1883, the road had replaced the two moguls with two Baldwin tank engines built in 1880 and 1881 and the rolling stock consisted of four passenger cars, one baggage car, three box cars, seven platform cars and two service cars.

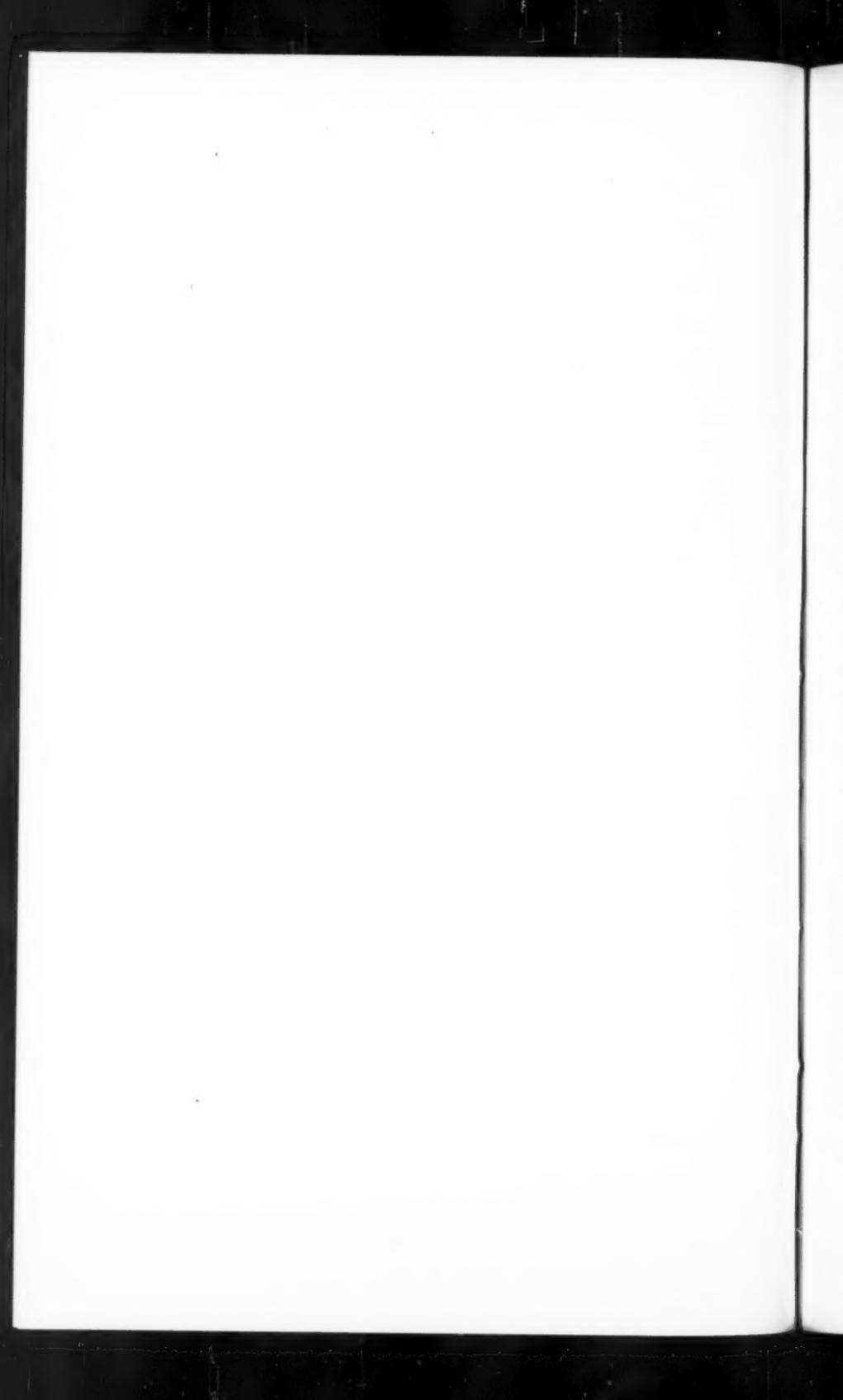
For thirteen years this road operated as a narrow gauge railroad but with the adoption of standard gauge by the Erie this probably influenced the little road to alter its gauge as well. During this period Mr. Allen Wood had sold his interests and the lease to Mr. Henry S. Stebbins of Hammondsport and on November 15, 1886 he assumed charge. It was not until 1889 that the gauge was changed and the road discontinued operations for nearly six months until all changes were



Erie depot at Bath, N. Y. about 1905. B. & H. 'Combine' in foreground.



B. & H. 'Combine' #712 Leased from Erie R. R. 1937.



made and the new equipment delivered. On August 1st of that year operations were resumed.

These changes cost the road \$90,000.00 and the new equipment cost \$45,000.00. Mr. Stebbins supplied most of the funds for this purpose. At the close of the year the road owned two locomotives and twelve freight and passenger cars. One of the engines, #7 was sold in 1892 and replaced by #8 built by Brooks in that same year.

The little road did quite a passenger business with the line of steamers that operated on Lake Keuka between Hammondsport and Penn Yan at the northern end of the lake. The steamers docked at the B. & H. depot. Outbound freight consisted largely of grapes and wines produced in the Lake Keuka region.

In October, 1903, parties friendly to the Erie R. R. gained control of the Bath & Hammondsport by purchase of stock. Actual operation of the little road was not taken over until 1908. The first years of operation saw an increase in passenger business chiefly in the number of excursion trains operated to Hammondsport to witness the trials of the flying boats "June Bug" and "America" built by Glenn Curtis. Only the outbreak of World War I in 1914 prevented an attempt of the latter to cross the Atlantic. These trials were all held on the south end of Lake Keuka and drew immense crowds from all around.

Prohibition cut into the freight business, the state highways stole what little was left and the passenger business and the steamship line on Lake Keuka also quit running. Passenger business was abandoned in the early 1920's. The little B. & H. engines were scrapped and replaced with others from the Erie. But with the repeal of prohibition the wine industry was revived and there came a demand for the fine table grapes grown in the Lake Keuka region. These moved largely by rail as the highways linking Hammondsport with Bath and Penn Yan could not support the large refrigerator trucks needed to move them.

Disaster came with a cloudburst early in the summer of 1935. Heavy rains flooded western New York state and northern Pennsylvania. Near the State Fish Hatchery the torrent gouged out a hole some twenty feet deep and fifty feet wide and more than one hundred yards long, destroying both the railway and highway. The Erie considered patching up the road enough to get the engine out that was at Hammondsport and then abandoning the property. Faced with almost no way of marketing their products, on May 28, 1936, five business men of Hammondsport purchased the B. & H. from the Erie.

The road that had been idle for nearly a year was rebuilt. In April, 1938, the #11 a light mogul from the Narragansett Pier R. R. was purchased. This locomotive, built by ALCo. in 1921, was originally built for a Cuban railway but political changes prevented delivery and it went to the Rhode Island company. The 860 of the Erie was returned to that road. The B. & H. track foreman and his crew built the center door caboose and the road made a fresh start.

The road is now 9.16 miles long and has 1.54 miles of spurs and sidings. The rails are of 66 and 90 lbs. weight to the yard and the con-

trolling grade is near the State Fish Hatchery where the 11 spot can haul only seven loads with the caboose up this 2½% grade. The little road has had an interesting seventy-one years of existence and has survived where others have failed. Fourteen men are employd in full or part time and let us hope that conditions will permit the faithful discharge of their duties in serving this section of western New York state.

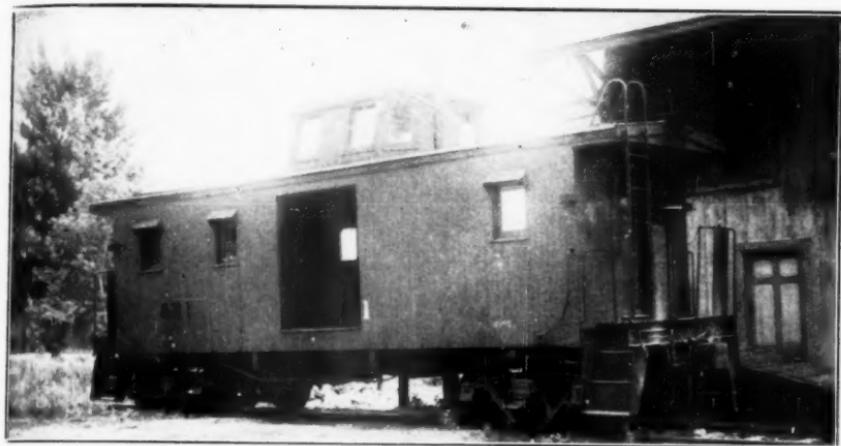
Locomotives — 1875-1943

Narrow Gauge

1 Unknown							33000	Sold	1880
2 Brooks	# 230	5-	1875	2-6-0	11x16"	36"	33000	Sold	
3 Unknown									
4 Baldwin	#4971	2-	1880	0-4-4T	9x14"	30"	30000	Sold	
5 Baldwin	#5921	11-	1881	2-4-2T	10x16"	36"	40000	Sold	

Standard Gauge

6 Rome	—	—	4-4-0	16x24"	60"	70000	Sold	8-1910	
7 Unknown						70000	Sold	1892	
8 Brooks	#1517	5-	1892	4-4-0	15x24"	47"	—	Sold	8-1912
11 Schenectady			1921	2-6-0	18x24"	50"	111000	Ex	
							Narragansett	Pier #11	



B. & H. Caboose #1 at Hammondsport, N. Y. 1939.

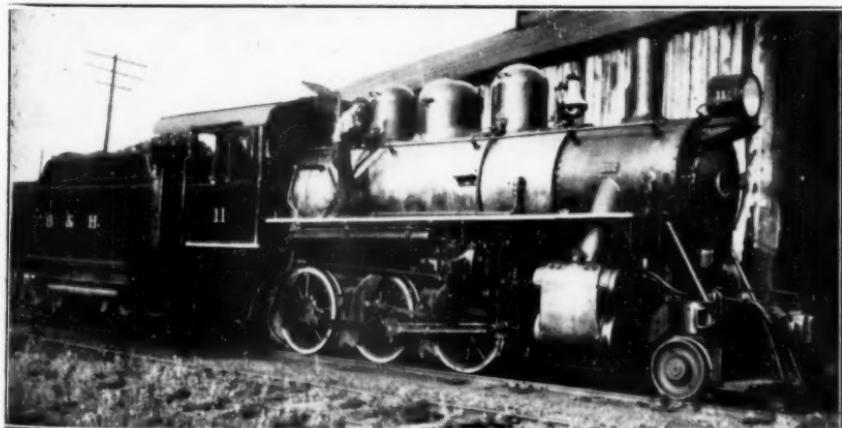
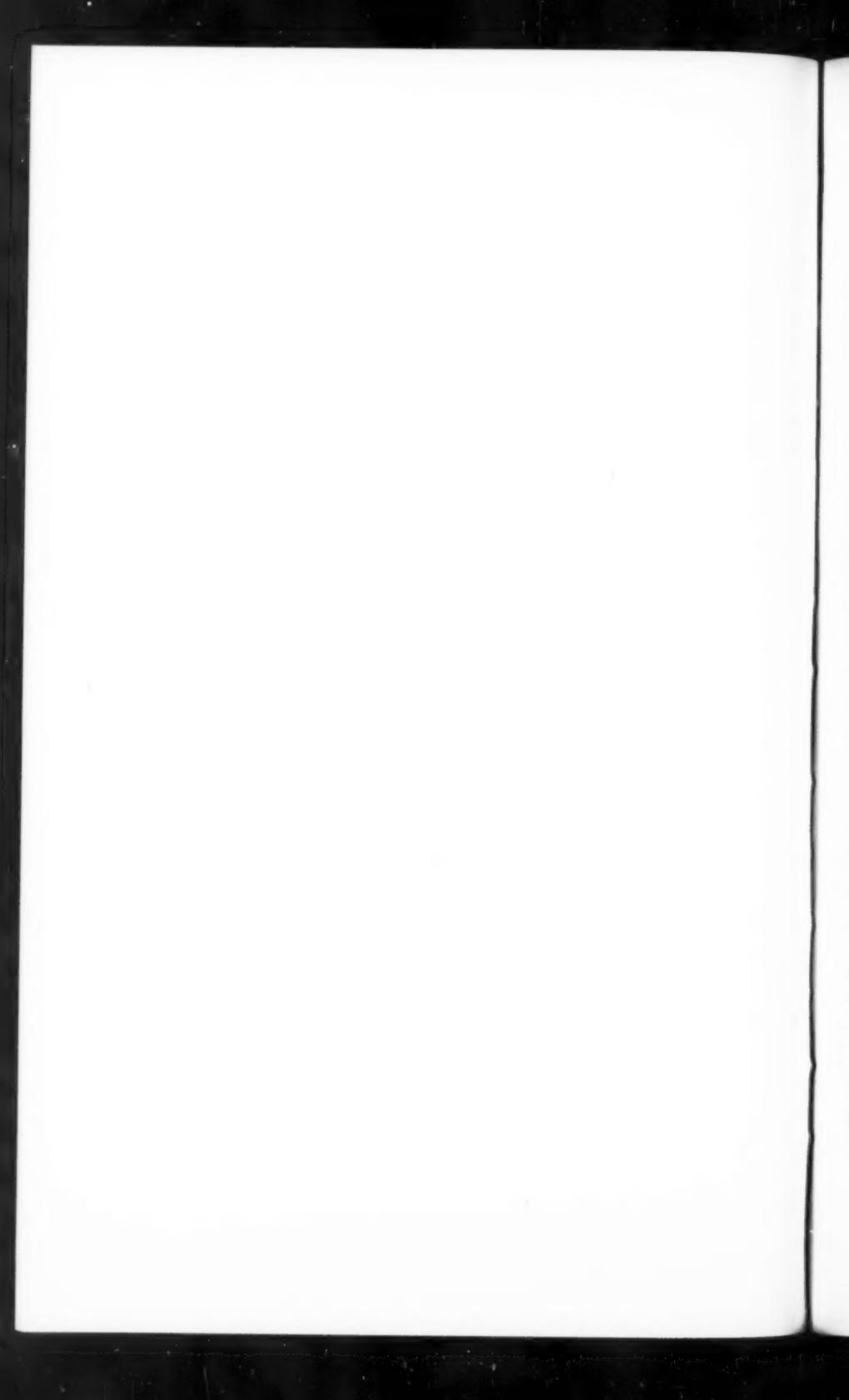


Photo by T. A. Gay; Courtesy of G. M. Best.
B. & H. #11, Cooke 1921. Ex-Narragansett Pier R. R. #11.



The Story of Emma Nevada Kimball

San Gabriel, California
June 5, 1943

Miss C. P. Huntington,
c/o D. L. Joslyn,
2164 Castro Way,
Sacramento, Calif.

My dear Miss Huntington;

I have been intending to write to you for a long time, to tell you of my adventures down here in the land of make-believe, but I have just been so busy, I could never quite get around to it.

But recently, when a copy of your auto-biography was read to me, I decided that it was about time I took my typewriter in hand, and wrote you a letter. As you probably will recall, I was saved from a premature death at the early age of 57, by great good fortune, and instead of being carted away to the steel mills and broken up for scrap iron to be sold to the dirty Japs, and then fired back at our boys a few years later, I was purchased by Ward Kimball down here in San Gabriel, and with the help of some of his good friends, I was brought all the way from Battle Mountain in a big, steel gondola, and installed in Ward's backyard, amidst the most beautiful surroundings, with high, snow covered mountains in the distance, and wonderful groves of orange trees that were so close together that I could barely squeeze in amongst them.

I had my doubts about what my fate was to be, when the little Nevada Central, which had been my home ever since I was built by Baldwin in 1881 was abandoned, and all my mates were sold far and wide, and you will recall our conversation on the subject during those brief few minutes we met at the Sacramento station in 1938, while my gondola in which I rode so comfortably was set out of a mixed train that had come down the hill from Sparks that day. But you assured me that if I was going to belong to a good friend of Dave Joslyn's, I was sure to have a happy home, and happy indeed it has been all these years.

When I was first brought to Los Angeles, you will recall I was taken into Taylor Round House; you know, the big Southern Pacific house where they sat you down off the flat car in 1939 when you were down here, and where Mr. Hoyal and Jerry Best ran you up and down and had the time of their lives playing engineer with you. Well, they gave me an inspection there, and listed all the things that had to be done to me before I could run again. There too, I met my new friends, Ward Kimball and Jerry Best, who climbed all over me, and tried my throttle bar with a possessive hand, and had nice things to say about me, all of which warmed my heart and I longed to run on their railroad and show them what I could do.

Then I was taken out through the busy streets of Los Angeles to San Gabriel, and my, what an exciting ride it was, weaving in and out of traffic at a hair-raising pace. I had never seen so many automobiles in my life, and you should have seen the auto I was riding in. Why, it had over forty wheels, and the roar of its motor was louder than the biggest noise I ever was able to make in my whole life. And then, there I was in the middle of an orange grove, on the smallest railroad I had ever seen. It was only a hundred feet long, and I could just barely crowd in on the track with the passenger coach which I supposed I was to haul in order to earn my keep.

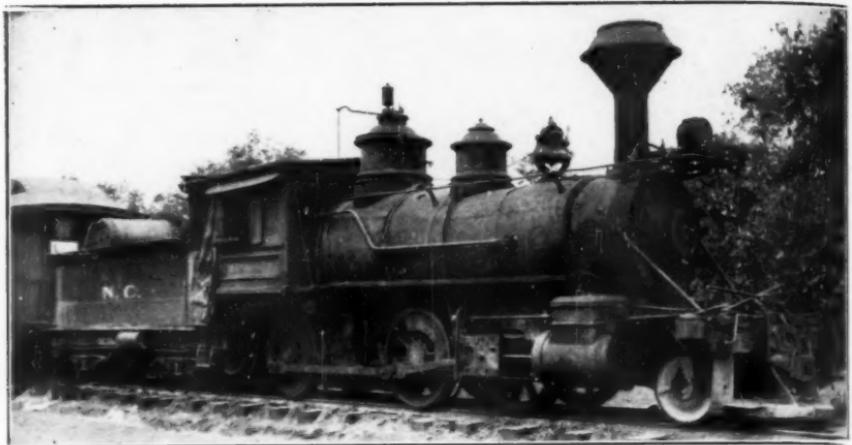
Soon other men came around to see me, and among them were Dick Jackson, Art Fleming, and a nice, grey haired man named Cooper, all of whom I was soon well acquainted with. And then there was the sweetest little blonde lady, who came out to see me, and I found that she was Mrs. Kimball. Now most of the wives of the men who came around and worked on me thought their husbands were just a bunch of screwballs to be playing with a locomotive in an orchard, but not so Betty Kimball. She would come out and help her husband clean my windows and slick up my cab, and many were the hours she spent doing all sorts of odd jobs on my exterior. It didn't matter how dirty the job was; just whatever her husband wanted her to do around me, she would do, and seemed very pleased with the task. I grew very fond of her as you can well imagine.

Well, as you can see from the picture of me in the gondola, I was dirty and unkempt. My former owners did not have much money to spend for paint and fine fixings, and I was left in a very rundown condition, I am sorry to say. So the first thing my new owners did was to strip off my jacket, and then they removed most of my lagging, so that there I stood, all naked, with every rivet showing, right out in the open. I was so embarrassed, but what could I do? Then they took off all my cab fittings, my airpump, injectors, the rickety old pilot that was all smashed up getting me loaded in the gondola, and they even took my headlight away to some museum for automobiles, they said, although I didn't think there was anything so curious about a 1904 model Cadillac acetylene headlight. It had been very useful to me after my old headlight got broken years ago. But anyway, soon I had no tender, for they broke up my tank frame for firewood, and I was really silly looking, sitting out there with no home, and no place to go.

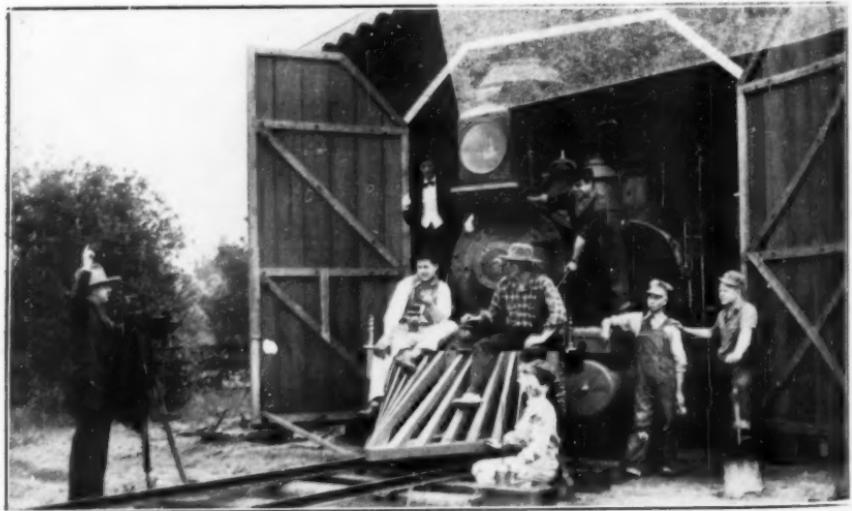
Then things began to happen. First they built a nice long track for me to run on, so the passenger car did not crowd up against me all the time, and men would come out every Sunday and work on the track, until they had it built clear up past Mr. Kimball's house to the north, and way back to the end of his orchard to the south. Then they built a fine, large, two stall shed for me to sit in, with a nice track for my very good pal, the coach, and a fine concrete pit under my resting place so they could work underneath me. Then one day Jerry Best brought around some shiny boxes of brand new boiler lagging, and some of the most beautiful pieces of polished steel, from which Mr. Kimball

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I arrive at my new home! "Jerry" Best took my picture Jan. 1, 1939.



Here are my restorers—Oct. 27, 1942.

and his friend Mr. Cooper cut my new jacket. Then they cleaned the inside of my boiler, slicked up my chassis, scraping off all the desert grime that had accumulated there, and soon I could roll so easily that two or three men could push me by hand. Then your friend Dave Joslyn sent down a blueprint for my new pilot, which one day they brought out to the shed and fitted on my front end. My, how fine I looked with that long, graceful pilot, with the link fitting in the groove down the center, after so many years with a stubby little excuse they called a footboard.

Then Dick Jackson brought out some shiny new brass handholds for my cab, flagstaffs for my pilot, and other brass trimmings to make me look just as I did when I was new. Jerry Best brought me a fine headlight made at Baldwin the same year I was, that he had picked up in a store in Virginia City, and soon I was beginning to look respectable enough so that people no longer said, "Goodness, what a disreputable looking engine."

After that they put on my new running boards, brass hand rails, and under the tank they slid a new frame, so that soon everything was connected together again, and they slid me outside so Jerry Best could take my picture, while all my other friends stood around and posed all over me. All this took several years, you know; it had to be done when my friends could spare the time, but I was patient, and could await their pleasure. So before I knew it, here it was 1943, and one day Mr. Kimball said: "Well, I think the job is just about done. I am going to call up Jerry Best and maybe he can send some of his friends from the Southern Pacific out here to look over our work."

So a couple of days later, two important looking men with hats made of brass came out to see me, and one of them said, "Boy, you've got her dolled up like Aunt Mary's hat," which made me blush, for I really couldn't possibly look like that. True, they had painted my wheels and pilot red, my cab was green, and there were plenty of shiny brass trimmings everywhere on me, but that was the way I looked when I was new back in 1881, and in those days they didn't think I looked like any lady's hat. Well then, these men filled my boiler with water, and made some tests on me to see that I didn't leak, and then they built a fire in me. My, how good that fire felt, warming my innards for the first time in nearly four years, and soon I had 100 pounds of steam, and was popping off like I used to in the good old days. Then they ran me out of my home onto the main line, and tried my brakes. The boys had hooked them up backwards, but the men with the hats of brass soon fixed them, and I could stop as quickly as I ever could. I can't tell you how fine it felt to have the hot steam coursing through my cylinders and out through my exhaust, and I rode from one end of the line to the other in high glee; I felt like a colt that had just been put out to pasture. Then they put me away in the house for the night and banked my fire, so I knew they would use me again soon.

The next morning, which was Sunday, May 23rd, my owner was up bright and early, and came out to start up my fire again. Soon men

and their wives and kiddies were coming from all directions, and I hadn't seen that many people at one time since the days when I used to haul the good citizens of Austin out along the line for a picnic. Everyone climbed all over me, and soon they were taking turns playing at engineer and fireman, while I dutifully carried them back and forth over the line, from the front to the back of Mr. Kimball's fine orchard. Why, would you believe it, the engineer would reach right out of the cab window and pluck an orange from the trees as he rode by. And so I passed a very pleasant day, enjoying my new found freedom.

In the afternoon, Jerry Best showed up with his familiar rabbit-trap of a camera and the stick that he supports it on—you know, the one he has taken so many pictures of you with. Anyway, they stood me in a nice clear place, and he took the picture of me you see on the opposite page, with Mr. Kimball sitting there looking bashful and modest, but really so proud to be my owner and show me off.

Then Dick Jackson and some of the other movie fans got up on the roof of the garage, and hollered to Mr. Kimball to make a fast run past the camera for their movies, so he backed me down to the shed, and I made a rapid trip up past the garage to the end of the line, so I had to slide on my haunches to keep from running off the end. Then Mr. Kimball got down from the cab and let one of the other boys back me down again, and make another fast run, while he stood in back of Jerry Best and watched him take a picture of me as I flashed by. So the boys put me through my paces again, but this time they forgot to hook my motion up as soon as I got started, and they let me have a free halter with the throttle wide open, so I formed a steam syphon and began to throw water out of the stack all over my nice, shiny Russian iron jacket and new paint. But I struggled manfully under this handicap, as you can see in the picture, and managed to make a fast run for the cinema.

Then when I stopped at the garage, Jerry Best climbed up in my cab with a scowl on his face, and looked at my water glass and said, "Where in hell is your water?" The engineer said, "Why—why—I had three-quarters of a glass only a minute ago when we left the shed." "Well," said Jerry, "you goddam well haven't got it now." And muttering some other words that sounded just like those old time engineers up in Nevada who used to run me, he called Mr. Kimball up in the cab and showed him my empty water glass. And Ward said, "well, if she cant hold her water, I guess we had better dump her." Now wasn't that an embarrassing thing to say; I may be an old lady and all that, but if I am operated right, I can hold my water with the best of them, but soon there was a lot of shouting about getting the garden hose, and the boys dumped my fire right down on the ties, and put it out with the hose, and then they slowly backed me down to the shed.

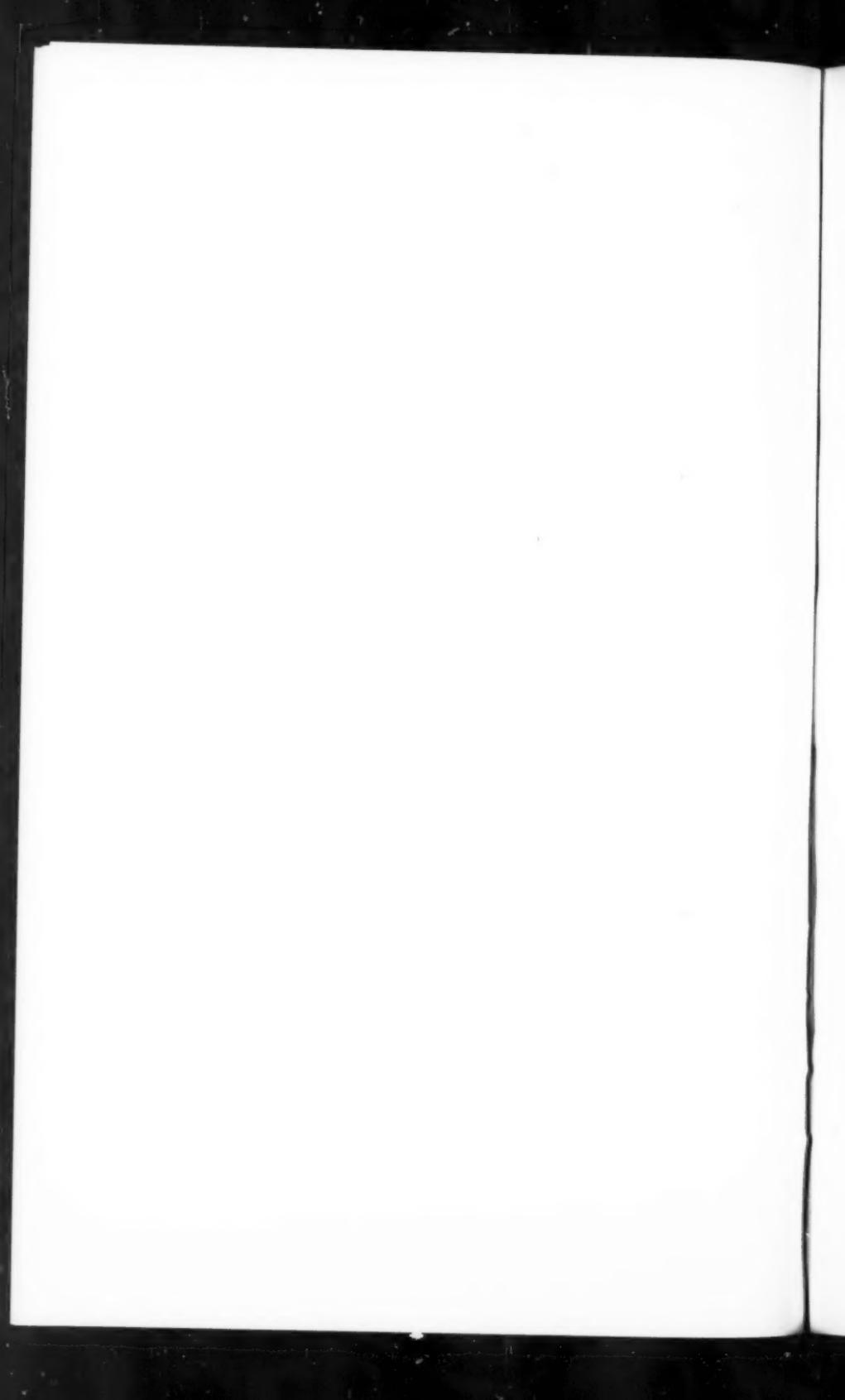
I felt very badly to have let them down at the end of such a perfect day, but then I guess they didn't know that in an old style engine like you and I both are, the crown bars take up a lot of room, and the water I can carry between a three-quarter and an empty glass is only



The "Little Lady" steps out—May 23, 1943.



What a mess that engineer made of my fine clothes—Same day.



25 gallons, and I have to be handled carefully when I am started up suddenly. Anyway, all the nice people who came to see me stripped off their coats, and went to work cleaning off the mess I had made on my jacket, and soon I was as neat and clean as ever. I heard Mr. Kimball tell Mr. Best that I had a sort of mellowed look, like I had been broken in the same as a Meerschaum pipe! I didn't know what such a pipe could be, as I had never had anything like that installed on me, but the folks all agreed that I looked fine, and so they backed me into my stall and put me away until some other weekend.

So now yon know how I have been faring down here in sunny Southern California, and I will close, hoping to hear from you some day when you are in the mood to write. With kindest regards, I am,

Your sincere friend,

EMMA NEVADA KIMBALL.

As told to G. M. Best.

A Unique Memorial Window

There have been various types of memorials erected by and for the railroad man. They have taken the form of statues, tombstones with their carving depicting a locomotive or train and the preservation of a locomotive or a piece of equipment, is in itself a memorial. But it was quite by accident that your Editor learned of the church with the memorial window of a locomotive at Stevens Point, Wisconsin. Personally, I can appreciate the pride that John Lonnon and his fellow engineers felt when they gazed at the colored window of the #28. The average railroad man usually goes to church when his work permits him. The story is told of George S. Griggs, M. M. of the Boston & Providence R. R. who was in the habit of spending his Sunday mornings in the roundhouse and shops at Roxbury. His wife finally prevailed upon him to attend divine service, telling him he could go down to the shops in the afternoon. Decked out in his best "bib and tucker" they started for church. All went well until the middle of the sermon when suddenly there was a noise like the report of a pistol. George Griggs brought his fist down in the palm of his hand and uttered—"I'll make it of cast iron by G—!" He may have been in church but his active mind was still at Roxbury Shops. Needless to say this was his last church appearance for some time. Perhaps had the church a stained glass engine of one of his famous "insiders" he might have been more content.

Be that as it may, I'm sure that our members will be interested in Mr. Martin's account of this interesting memorial.

April 20, 1943

Editor:

In some of our recent correspondence we discussed the subject of memorials, erected to commemorate the fame of certain outstanding locomotives.

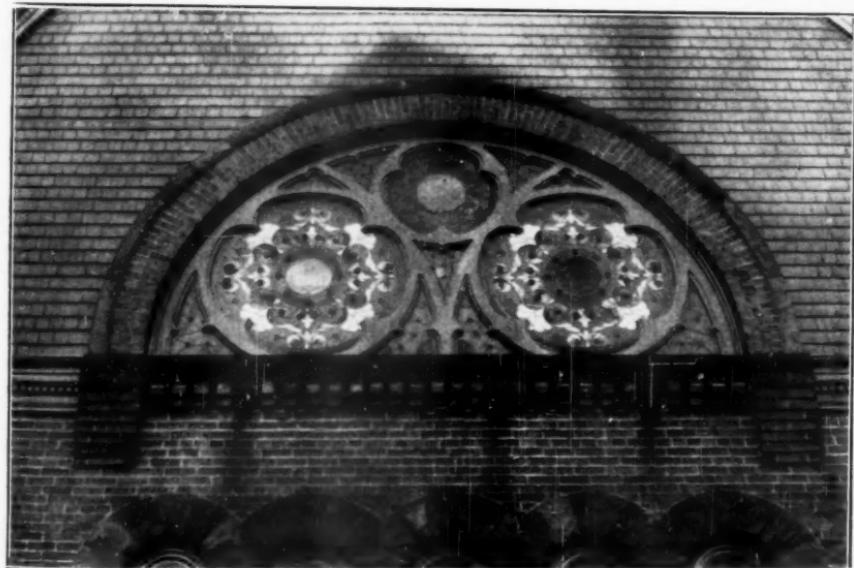
And while we were on the subject, you asked me to write up the details of the story which concerns the history of Wisconsin Central locomotive #28 and her rather unique memorial window, in a church in Stevens Point, Wisconsin.

To comply with your request is not a difficult task but rather, a pleasant assignment because of my sentimental regard for the old WC and because it opens the gate for a bit of reminiscence. For, to us former Stevens Pointers and ex-WC enginemen the tale of the 28 and her runner, John Lonnon, reads like a page out of an old engineers diary—full of that indefinable something that makes enginemen love their engines.

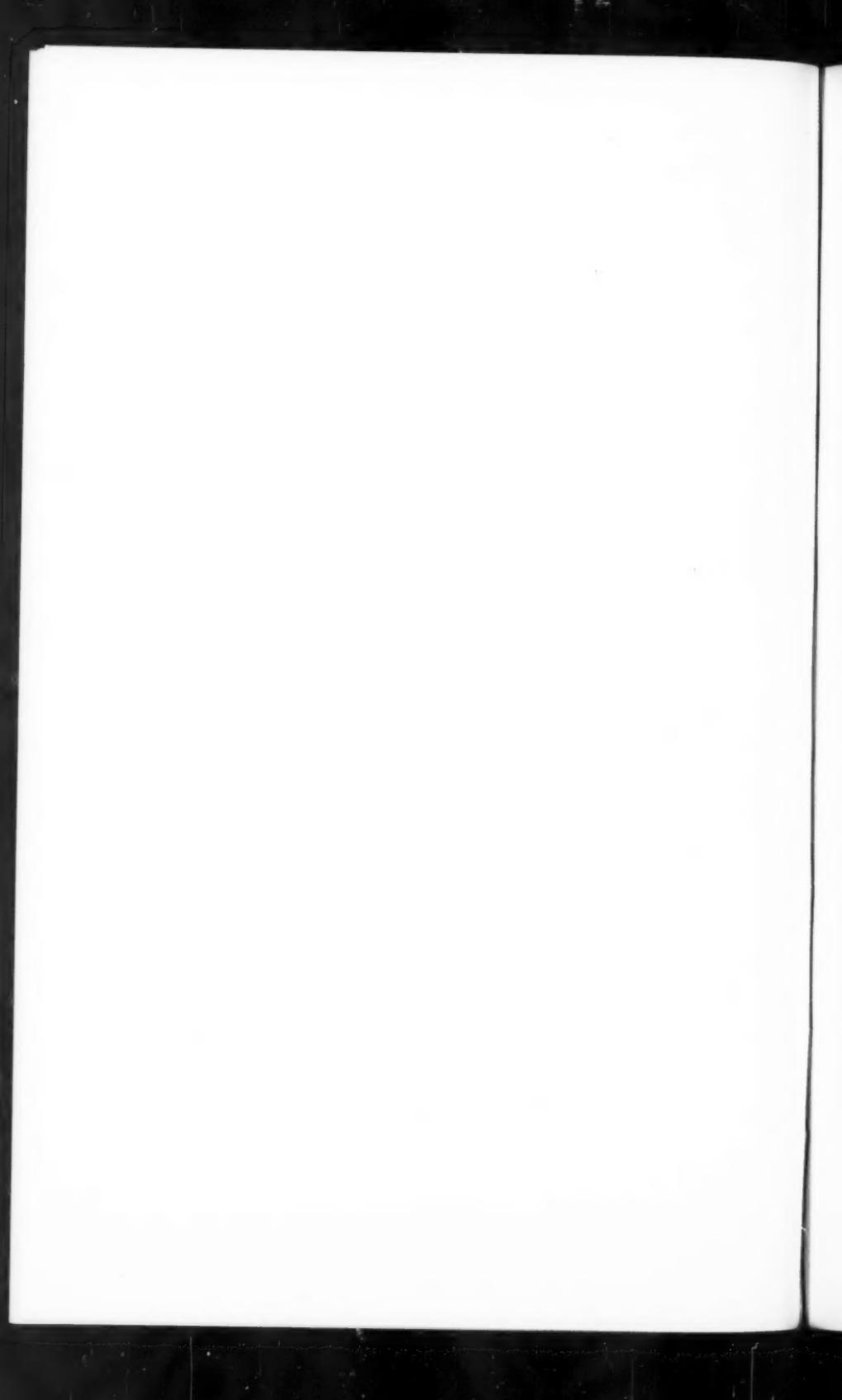
The tale, of course, is savored with black smoke and hot engine oil, set in a background of the big timber and, strangely enough, clothed in the dignity of reverent churchly devotion; a rare combination, to be



First Methodist Church, Stevens Point, Wisconsin. Built 1889-1890.



The three circular windows within the semi-circular arch were presented to the First Methodist Church by the Engineers of the Wisconsin Central. Topmost window contains replica of the old Baldwin 28. Two of the narrow vertical windows beneath the arch were donated by Mr. and Mrs. John Lennon. West wall exposure, facing Strong's Avenue.



sure, sponsored in a town strongly steeped in the traditions of the Wisconsin Central.

Engineer John Lonnons idea for a memorial window for his engine was a new one to most of our folks and became the crux of earnest discussions, back in 1889, in many an engineers family circle—around the kitchen cook stoves—over the red and white checkered table cloths—under the parlor kerosene lamps. Yes, Stevens Point was up to its neck in the backwoods then; even so, the audacious plan for a memorial to a thing like a locomotive created a whirlwind of gossip in the old home town.

But John was a determined man, and full of his resolution. His original designs soon caught on and his fellow engineers (George Utter, James McAdams, Charley Bloye, Abe Gilbert, Art Fillmore, John Holman, Fred Gillette) approved and chipped in generously to swell the memorial fund.

John Lonnon was a devout churchman, a pious trustee, a solid pillar in the First Methodist Church. When the new church edifice reached completion in 1890, John realized his greatest ambition—to immortalize his regular engine within his beloved church in the form of a leaded, stained glass replica of the 28, complete with long, rakish pilot, yankee diamond stack and a purple glass black smoke plume floating away in the background.

In the presentation of the memorial window, at the dedication of the new church building, the pastor Rev. E. S. McChesney, in appropriate ceremony lauded the sentiment which prompted the generous gift by the engineers. A big day it was and full of feeling, as you may imagine, serving as a happy attachment to link the rails closer to the church with something visible and lasting.

Although not exact in detail (for the 28 was a two-domed, straight boiler engine, as the accompanying photo will show) the memorial window was artistically done, and Johns most luxurious moments came when he settled back in the Lonnon pew, of a Sunday morning, to watch the sparkling high-lights around the old 28 as the sunlight beamed through the iridescent glass.

John has been gone these many years. Popularly known as "John the Methodist" or "Johnny Bull from the Canada Southern," he was not, as you might suspect, a long-faced sanctimonious eccentric. Far from it, and much to the contrary, he was a mighty man of iron, built close to the ground—short, square and hard—two hundred and fifty pounds of the hardest kind of bone and meat and easily the most powerful man on the road. Everyone knew that John had not a single vice—a genial, jovial soul, but a devastating tornado when his wrath boiled over. Moreover, everyone made himself mighty scarce and hard to reach when John got down from his engine with a monkey wrench in his hand, softly humming Methodist tunes. All told and in round numbers, John was quite a man, and his deep devotion to the old 28 leaves us with a nice appreciation of the many interesting things we find in railroads.

Of all the great silent majority of locomotives that have headed our rail transportation in the past century, few have been memorialized or even remembered. Most of them have gone down into oblivion; unsung hunks of iron.

Occasionally we find a grand old engine like the General, the Bowker or the Pioneer, still well preserved and historically famous. Others live on, kept alive in an oil painting, perhaps by a miniature in bronze or carved on a tombstone. Yet the vast number of old locomotives have passed into the dark limbo, without flowers or mourners.

But the fate of the 28 was different. She was a 17 by 24 Baldwin eight-wheeler—two domes, straight boiler, weighed 33 tons; one of thirteen identical engines built and delivered to the Wisconsin Central in 1880.

In the 1870's and 80's, hundreds of her Baldwin prototypes were pulling their trains on most every road in the nation; smart and sturdy, popular with enginemen. The 28 was as good as the best of them.

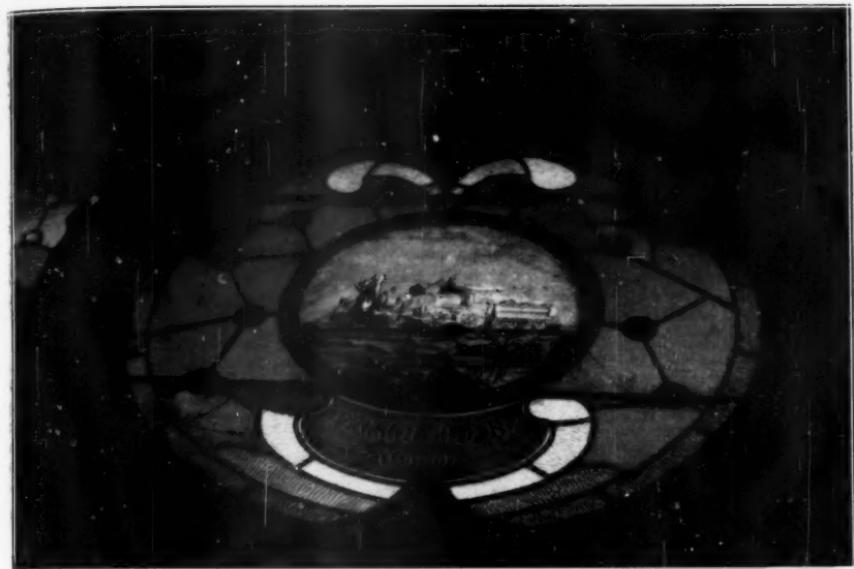
Though they knocked her fire out for the last time 30 years ago, they say the 28 still rolls her trim drivers; and to many of the old-timers up in Wisconsin, her square exhausts still echo across Rocky Run, as they did 60 years ago.

Only in spirit, to be sure, but the old-timers still dream of hearing the steady, rolling musical rythm played by a little Baldwin, wheeling her train over Webster Hill and down through the shadowy swath cut through the tall pines, on the way to St. Paul.

Strange how those memories persist. Perhaps its nostalgia, maybe the 28's memorial window helps. After all, the 28 and her window are symbolic;—a modest tribute to all those fine old engines of the WC.

For many years after the 28 came brand new from Baldwin in 1880, her white feather and black smoke plume trailed back over the varnished cars of the Central—a neat figure she was, in shining brass, green paint and gold stripes. Shortly after her arrival she was converted from wood to coal; she was fitted with a straight capped stack and her new front-end extension gave her a chesty look. For five years she remained one of the engineers pets. Mel Buck, who ran her on passenger trains 3 and 4 between Stevens Point and Chippewa Falls, used to brag of her ability to "throw a fast and wicked wheel." Old "Mulkelly" Dawson, her regular fireman boasted constantly about her steam gauge needle always pointing to the 135 mark. She pulled the pay-car and the Presidents private car, and at the roundhouse, it was agreed that she was a whale of a good engine.

Glory is short-lived and fleeting, even with locomotives. Late in 1885 when the Chicago Division of the WC neared completion and appeared about ready for through traffic, Chicago to St. Paul, fifteen glistening new McQueens trooped into headquarters at Stevens Point to take the banner away from the 28 and her sister engines. The new McQueen eight-wheelers heavily over-shadowed the older Baldwins in every respect,—weight, performance and appearance—and the 28 moved down a notch to lug the plain and fancy box cars.



Close-up of Memorial Window. Inscribed "Presented by RR Engineers."



HEY-DAY OF THE TWO BALDWINS on the Wisconsin Central. The 12 Spot plays no role in the little drama of the Memorial window other than to portray an excellent broadside likeness of the old 28 when she was in her prime; no clear side view of the 28 available. Scene: Plover Creek bridge, a mile east of Stevens Point on the main line of the W. C.; time, 1889. Engineer Tony Burke; fireman, Alex Ireland. Pile driver #1, first steam operated pile driver on the W. C.

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Here she became John Lonnons regular engine on a carded freight run between the Point and Chippewa Falls; a steadfast partnership lasting through many years, and the inspiration for the window memorial to the dependable little Baldwin.

Then, after the new "Big Brooks" ten-wheelers arrived on the WC in 1890, John parted company with the 28 to ride high on the deck of the swagger new Brooks #202. The 28 drifted gradually into the roost-about ranks, roaming here and there on light way freight runs, spotting cars to the steam shovels in gravel pits and the Penokee iron mines, working the short branches that fringe the main stem. Finally, they heaped insults upon her by installing foot-boards on the back of her tender,—a shameful desecration of an erstwhile high-flying passenger engine, now doomed to confinement between yard-limit boards.

What happened to her old runner, John Lonnons? One fateful day in 1895, a day of destiny for John, he was south-bound with 40 cars of time freight, rolling high with his Brooks #202. Dropping down the hill into Spencer, he found the way-freight occupying the main line in front of the depot, the crew busily working the way-cars, no flagman out to protect the rear end.

Working fast, John whistled for brakes, "took the 202 by the ears," "horsed her over on sand," dynamited her with everything Westinghouse ever invented, gave her the "Big Hole" with Chamber D thrown in for good measure. All his heroic measures were too little and too late and he speared the rear end of the way-freight,—speared it with faultless accuracy and thunderous impact.

John was always very thorough in everything he did. With accustomed thoroughness, he draped the way-freight neatly over and through the Spencer depot and arranged half of his own train, generously if not gracefully, across the right-of-way in picturesquae formation, piling up the box cars in a manner never wholly approved in the best railroad circles.

The dust finally settled. During the official investigation, Div. Sup't. A. R. H. presiding, John's efforts to prove himself blameless were futile. The official cast-iron ears were deaf to possible errors in human judgment; cold, vengeful eyes saw no virtue in the sturdy soul of the upright engineer and his long years of loyal service. Forthwith, John was yanked out by the roots and unconditionally discharged, never to run an engine again.

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If you will look back for a minute to the years beginning 1875, you might see one William H. Upham, newly settled in the lumber-camp town of Marshfield, right in the thickest of a vast empire of tall pine timber. Logs and lumber filled the whole business picture of the Upham Lumber & Mfg. Co., and before many years passed, Upham was rated highly as a lumber baron (later elected Governor of the State) with saw-mills, sprawling lumber yards and camps, and logging railroads stretching out deeply into the virgin backwoods.

In the 1880's and 90's, Upham's system of logging roads stemmed out from the Wisconsin Central main line, every five or six miles all the way from Marshfield to Athens and Goodrich, 35 miles to the north. A close relationship existed between the Upham Co. and the W. C. wherein locomotives of the Central were loaned, leased or sold to Upham for use in his extensive logging operations.

Upham bought his first locomotive from the W. C. in 1880—an old eight-wheeled, inside-connected Taunton built in 1847, purchased by the W. C. from the New York, Providence & Boston about 1875, road numbered 47 (First 47). Renamed "Old Vanderbilt" by Upham Co., she lasted about eighteen years until her copper firebox played out and her frequent crank-axle breakage became a burdensome expense.

Long stigmatized, and blamed for starting the blaze that burned the entire town of Marshfield to the ground in 1887, "Old Vanderbilt" is still featured in story and vivid tradition within the Marshfield area. She clanked her last mile in 1898 when Upham tore her down and used the boiler as a heating plant for his company stores building.

As usual, the W. C. was called upon for another engine to replace "Old Vanderbilt." Here we return to the saga of the 28, for when Upham's late purchase rolled into Marshfield, it was none other than this memorialized little Baldwin, now with 18 years of hard going to her credit and a church window as a crowning halo. She had been refurbished a bit; the W. C. shield design number plate now bore her new number, Upham's "1000."

For the next ten years she weaved and swayed through the jungles of hemlock and Norway pine, over top-soil roadbed and swamp corduroy, snaking log jimmies to the many Upham mills. Upham employed some capable engineers during that period—Ed Upham, Pat Lyons and Frank Luckenbach, in sequence—each examined on transportation rules and approved by the W. C. for main line operations between Marshfield and Athens. The 28 was in good hands, and Upham's men swore there was plenty of life in the old gal yet,—the best engine Upham ever owned. Due to her dependability, the W. C. allowed her to operate on the main stem northward, one trip daily with empty log jimmies, returning with loads of logs to be dumped into the big mill pond at Marshfield.

By 1908 the timber north and west of Marshfield had been well harvested and Upham Co. sold their interests, locomotives and cars and logging equipment to the United States Leather Co., then operating in Taylor, Price and Lincoln counties, 50 miles to the north. Shortly thereafter, the U. S. Leather Co. transferred their properties to the Rib Lake Lumber Co., with headquarters at Rib Lake, Wisconsin. The town is the jump-off end of a 6 mile branch built by the W. C. in 1883, part of an ambitious plan to span the 55 miles between Chelsea, on the main, eastward to Rhinelander, tapping an exceptionally heavy stand of timber. Rib Lake seemed to be the logical terminal when the 55 mile plan miscarried, and ever since, many logging roads have spurred out from the town north and eastward to cut thick slices of the rich timber harvest.



MEMORIALIZED

IN THE BACKWOODS near Athens, Wisconsin in 1903 with a crew of rough and ready lumber jacks and track hands, old 28 of the Wisconsin Central, now Upham Lbr. Co.'s #1000, is pushing a new logging spur out from the Athens Branch of the W. C. across low pine country. A typical piece of corduroy road and log culvert. Upham Lbr. Co. used W. C. cars and other equipment in road construction.



"OLD VANDERBILT"

AT THE ENDS OF THE ROAD. Old Vanderbilt brings home the logs for Upham Lbr. Co. at Marshfield, Wis. Famous in Wisconsin railroad tradition for years, she had more than forty years of service when this was taken in 1890. Built by Taunton in 1847 for the N. Y. P. & B., named "Oregon," rebuilt and renamed "C. Vanderbilt" in 1860, sold to the Wisconsin Central in 1880, road numbered W. C. #47 (the first), sold to Upham Lumber Co. in 1884 and used in Upham's extensive logging operations until dismantled in 1898. Blamed for starting the fire that burned Marshfield to the ground in 1887.
Engineer Ed Upham; fireman, Frank Welch.

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Here old 28 worked out her last days and for three years she and engineer Frank Luckenbach teamed it together. But signs of age were upon the little Baldwin and she was growing old. Swamp water had pitted her boiler beyond redemption and her running gear hung loosely on her frame. Lame on both sides, her once sharp exhausts now blowing and weak, she went down for the count.

Finally in 1911 they laid her up at Rib Lake for good, and piece by piece, she went into the scrap bin as the torches and sledges tore her down. She came in on her own wheels, "hot and full of water"—she went out as a earload of mixed scrap; unidentified hunks of iron.

Today the old church at Stevens Point stands serene, active in its mission seemingly untouched by passing years, and with it the old 28, in clear, soft-toned glass, surveys the traffic along Strong's Avenue. Nowadays, railroaders around the old home town don't talk much about the memorial window and the 28, for its a hoary legend now, half submerged and almost forgotten in the dazzling progress of modern Streamliners and booming high iron.

Yet, deep under the skin they are tremendously proud to belong to the breed of lusty pioneers who made Wisconsin history, seventy years ago, on the decks of the little Baldwin eight-wheelers of the Wisconsin Central.

ROY L. MARTIN.

Acknowledgements

To Mr. Ed. Finney and Roy Meredith, veteran Wisconsin lumbermen.

To Miss Gertrude Thuess, Educator, whose father Fred Thuess, was master mechanic for Upham Lbr. Co. during the 1880-1908 period.

To a couple of WC-Soo Line engineers at Stevens Point goes the credit for obtaining the church photographs that accompany this article. Charley Anderson, as slick with a camera as with his engine, took the difficult shots from the top of a tall ladder while engineer Al Follett steadied the ground work. Between them, they have done an excellent job, and our hearty thanks for their interest and cooperation.

Charley Anderson, one of the younger group of engineers, handles a freight run out of Stevens Point. Al Follett, youthful looking old-timer, sixth on the engineers seniority roster, pulls the Soo Limited #17 and 18 on the Superior Division between Duluth and Owen, Wisconsin.

ROY L. MARTIN.

Pittsburg, Shawmut & Northern R. R.

As many of us know, last winter was one of the most severe in sixty years, in New England, and this, together with the fuel shortage curtailed some of our activities. Your Editor's office or "den" or what you will, was closed for the cold weather duration, but that is gone now.

The truth of the matter is that Capt. Robinson did submit certain corrections for his roster of locomotives. Some of these were included in the published roster in our BULLETIN #61 and others, because they required to be retyped, were not. The latter were overlooked in making up the bulletin and were not found until the corrected proof had been returned to the printer.

Needless to say your Editor apologizes to Capt. Robinson for this oversight and to our membership and he also wishes to thank Messrs. G. M. Best, Fred C. Hill and F. S. Graham for sending in their information.

From Mr. Best I received the following:

"The roster of the P. S. & N., as published in BULLETIN #61, mentions a group of eight Cooke engines, all built in 1886 for the Rochester, Hornellsville & Lackawanna and Lackawanna & Pittsburgh Railroads. I am of the opinion that if these engines ever ran on the roads for which they were built, it was for only a short period of time. Six of these engines, all of which were of the 4-4-0 type, definitely were on the Oregon Pacific Ry. by 1888; I base this statement on the fact that Poor's Manual of Railroads for 1889 shows 18 engines on the line, a total which continued the same until the road had been reorganized in 1897 as the Oregon, Central & Eastern, at which time some of its locomotives were sold to other lines. This road, which was built between 1882 and 1890, acquired most of its locomotives in 1887, and the six of which I have definite proof of their identity are as follows:

- Cooke #1724, L. & P. #10 became O. C. & E. #7, Corvallis & Eastern #10, acquired by the S. P. in 1915, not renumbered and scrapped in 1918.
- Cooke #1725, L. & P. #11 became O. C. & E. #6, C. & E. #6, acquired by the S. P. in 1915 and scrapped in 1918.
- Cooke #1728, R. H. & L. #12 became O. C. & E. #4, C. & E. #4, acquired by and renumbered S. P. #1302, sold by them in 1917 to the J. H. Chambers Lbr. Co., Cottage Grove, Ore., their #12 and still in service.
- Cooke #1729, R. H. & L. #13 became O. C. & E. #5, C. & E. #5, acquired by the S. P. in 1915 and scrapped in 1918.
- Cooke #1730, R. H. & L. #14 became O. C. & E. #3, C. & E. #3, acquired by the S. P. in 1915 and scrapped that year.
- Cooke #1731, R. H. & L. #15 became O. C. & E. #15, C. & E. #15, sold to the Astoria & Columbia River in 1898 as their #4, became Spokane, Portland & Seattle #52 and sold to E. Turney, Sept. 1919.

Cooke #1728 was the engine used by Buster Keaton in 1927 in the motion picture "The General" in which the locomotive played the part of the locomotive "General." It is still in use on the lumber lines of the J. H. Chambers Co. and looks substantially as it did when built; it still has the odd looking steam dome cover which the motion picture people put on it in a silly attempt to make it

look like the original "General." I am unable to cast any light on the disposition of Cooke Nos. 1722 or 1723, but it is quite probable that one of them operated on the Oregon & Eureka R. R. in California as their #10, during the period from 1895 to 1905, after which time it was sold to the Rogue River Valley R. R. at Medford, Oregon. One gets the impression from reading Capt. Robinson's article, and following the history of the predecessor roads of the Shawmut, that this road ordered too much power for the business involved, and asked the locomotive builder to dispose of the engines to other customers. The fact that no records of these engines exist in the present company's records, and yet almost complete data is at hand for all of the other locomotives would indicate this to be a fact."

From Mr. Fred C. Hill came the information relative to three of the earliest standard gauge numbers:

"Number 1 was out of service when I first saw it in 1903. It stood on a siding near the station (Bolivar). All I can remember of this engine is that it was a 4-4-0 and that the word ALTOONA was cast in the nameplate. I have always assumed that originally it was a Pennsylvania Railroad engine.

"Number 2 was a light 4-4-0 with fluted domes similar to the old Rogers engines. Its drivers I think must have been 70", at least they appeared to be larger than those of the Brooks 4-4-0's. There was considerable brass on the engine such as the steam dome, sand box and cylinder casings. I think that this engine was scrapped before 1907. As I recall it was used only on specials and as a relief passenger engine.

"Number 3 was a light 4-6-0 of which I have a picture. I think that it was also scrapped before 1907. The boiler mountings, steam dome and sand box, were exactly similar to those of P. R. R. #489, Class De, I find in comparing pictures. No doubt the #3 was a former Pennsylvania R. R. engine."

And from Mr. F. Stewart Graham came this information:

"P. S. & N. #18, originally #100, M. & E. Div. of the D. L. & W. Name 'William Buchanan,' renumbered 99 in 1879. Dickson #111, 1872, renumbered 237 in 1899, sold to P. S. & N. in 1903.

"P. S. & N. #19, originally #96, M. & E. Div. of the D. L. & W. Name 'Morristown.' Dickson #108, 1872, renumbered 251 in 1899, sold to P. S. & N. in 1903. Incidentally, this was the second engine on the M. & E. to bear this same name and road number, both built in 1872. The shop number of the other one was #96."

The #11 was so badly wrecked in a head on collision with a freight, extra 68, south, that she was scrapped. Engineer William Johnson, senior engineer of the road, misunderstood a meet order and lost his life in the accident.

With the exception of the data supplied by Mr. Best, all of the rest of the material had been supplied to Capt. Robinson by both Messrs. Graham and Hill and was in my files. Your editor regrets these errors but he is glad to furnish this additional data.

Worth Reading

(Compiled by Elizabeth O. Cullen, Reference Librarian, Bureau of Railway Economics, Association of American Railroads, Washington, D. C.)

Books and Pamphlets

Company Museums, by Laurence Vail Coleman, director of the American Association of Museums. viii, 173 pp. Published by the American Association of Museums, Washington, D. C. \$2.50. Describes The Denver & Rio Grande Western Railroad Archives and Museum, Denver, Colo., p. 98; The Baltimore & Ohio Historical Collection, Baltimore, Md., pp. 106-107; Union Pacific Historical Museum, Omaha, Nebraska, pp. 120-121; New York Central Museum of Transportation, New York City, p. 133; Norfolk and Western Railway Company Railway Historical Collection, Roanoke, Va., p. 156.

Facts about British Railways in Wartime 1943. 64 pp. Illustrated. Issued by British Railways Press Office, c/o Southern Railway, Waterloo Station, London, S. E. 1, England. 1 shilling.

The God of the Machine, by Isabel Paterson. vii, 292 pp. Published by G. P. Putnam's Sons, New York City. \$2.75. "The Energy Circuit" as affected by many things, including transportation from the 4th Century, B. C. to the present time. Reviewed in *Railway Age*, August 14, 1943, under title: Economics and Politics in Engineering Terms.

Italian Railroads—A Memorandum Listing Some of the Recently-Published Material in this Library, by Bureau of Railway Economics Library, Association of American Railroads, Washington, D. C., August 14, 1943. 11 mimeo. 1. Part 1) Publications of the Italian State Railways. Part 2) Books including data on Italian railroads. Part 3) Articles in periodicals, selected to indicate "high lights" from 1939 to date. "1943-August. Daily newspapers' accounts of the constant air raids on Italy . . . are the current sources of data on what is happening to railroads in Italy. Summaries and descriptions will become available in periodicals and reports, later on." (p. 11)

MARS Rides the Rails, by Charles T. Lucey, staff-writer, New York World-Telegram. cover-title, [10] pp. Illustrated. Reprint by special permission of the publisher and author of series of articles published in May 1943 in New York World-Telegram and other Scripps-Howard newspapers, by Association of American Railroads. Available on request to the Association, Washington 6, D. C. ". . . This report is written after covering 9000 miles of rail line from coast to coast, riding passenger trains and freights, ancient day coaches and 'high shinners,' uppers and lowers; after talking to railroad presidents and roundhouse hostlers, yardmasters and sleeping-car porters, engineers and firemen . . ."

Railroad Songs of Yesterday, by Sterling Sherwin and Harry K. McClintock. Foreword by William M. Jeffers, president, Union Pacific Railroad. 47 pp. Published by Shapiro, Bernstein & Co., music publishers, New York City. \$1.00. Contains words, music, and illustrations.

Railroading from the Head End, by S. Kip Farrington, Jr. xvii, [2], 296 pp. Illustrated. Published by Doubleday, Doran & Co., Inc., Garden City, N. Y. \$3.50. Introduction by J. J. Appleton, Colonel, Transportation Corps, U. S. Army, pp. xv-xvii.

A Review of Railway Operations in 1942, by Julius H. Parmelee, director, Bureau of Railway Economics, Association of American Railroads, Washington 6, D. C. 40 pp. Reprinted by permission from *Railway Age*—Annual Statistical and Outlook Number, January 2, 1943, with figures revised to May 1, 1943, as BRE Special Series No. 72. Available on request to Bureau. ". . . So many and so powerful were the impacts of war economy on transportation that to record them within small compass is not easy. Only the most striking developments can and will be noted . . ." p. 3.

Talbot and Track, by L. K. Silcox, vice president, The New York Air Brake Co., New York. 47 mimeo. pp. including Tables and Charts. Paper presented at Massachusetts Institute of Technology, August 11, 1943. ". . . Thirty years ago the Boards of Directors of the American Society of Civil Engineers and the American Railway Engineering Association joined in forming a special committee to deal with stresses in track . . . from the beginning the guiding experience and genius of Dr. Arthur Newell Talbot emerged as the promise for final success and intelligent evaluation of a vast and baffling problem. It is appropriate that a treatise dealing with the subject of track and its interrelation with rolling equipment should be dedicated to the memory of the late Dr. Arthur Newell Talbot . . ." pp. 1-2.

Transport for War, by Edward Hungerford. 272 pp. Published by E. P. Dutton & Co., New York City. \$3.00. A detailed survey of war demands upon and the accomplishments of water transportation, rail transportation—" . . . Old Man Railroad is on the job again . . . "—highway and air transportation since Pearl Harbor. Organization of railway battalions for service abroad and use of railway facilities for military training in this country, as well as the use of railway facilities for mobilization of troops and movement of war materials are among the details presented.

Transportation . . . Prewar and Postwar, by P. Harvey Middleton, executive vice president, Railway Business Association, Chicago, Ill. Introduction by Harry A. Wheeler, president, RBA, x, 64 pp.

Universal Directory of Railway Officials and Railway Year Book 1942-1943, compiled from official sources under the direction of The Editor, The Railway Gazette. iv, 573 pp. Published by The Directory

Publishing Co., Ltd., London, England. 20 shillings. ". . . Within the limitations imposed by war conditions, the lists of railway officers have been revised, and the brief descriptions of the chief railway systems of the world, with the latest available financial results, include the most recent changes of which precise information is attainable . . ." p. iii.

The Western New York and Pennsylvania Railway. 24 pp. P. R. R. Historical Series No. 1, published with the co-operation of The Railway and Locomotive Historical Society, by Norman J. Perrin, Baltimore, Md. 50 cents. Map on rear cover.

Articles in Periodicals

American Railroaders and Equipment in Iran, by Col. J. A. Appleton, chief, Railroad Division, Transportation Corps, U. S. Army. *Railway Age*, April 24, 1943, p. 819. "On March 30, the first all-American train carrying war supplies to Russia steamed into the capital of Iran after a 650-mile journey from the Persian Gulf . . . A large share of the credit for this tremendous achievement belongs to the men in America who are turning out locomotives and rolling stock. I've just returned from Iran where I've seen the equipment doing the job it was designed for . . ."

Aviation—Nation's Largest Industry, by C. I. Stanton, CAA administrator. *Civil Aeronautics Journal*, July 15, 1943, p. 91. ". . . Some aviation enthusiasts are predicting that the airplane is about to make our railroads, steamships and trucks obsolete. That may be so, but I doubt the probability of the airplane carrying any large amounts of heavy bulk freight except where surface transport is non-existent. Extravagant claims along this line merely confuse and mislead the public about the real values of aviation. The airplane has an essential job to perform and it will do this by supplementing—and not by supplanting—other forms of transportation . . ."

Brother, Can You Spare A Locomotive? by Frank J. Taylor. *Saturday Evening Post*, June 26, 1943, pp. 26-27, 73-75. Illustrated in color. ". . . One of today's hottest stretches of track is a 137-mile run over the Sierra Nevada [Sacramento Division, Southern Pacific]. Here's how they keep 'em rolling . . . the Southern Pacific typifies the strain the war has placed on all Western railroads . . ."

Canadian Pacific Airlines Air Freighting Record—Horses, Oxen, A Motor Boat and A Steam Shovel were among the Freight Moved by Air to the Shipshaw Development in Northern Quebec. Canadian Transportation, June 1943, p. 287. ". . . The job was handled by eight planes, equipped with skis in winter and with floats in summer . . ." Illustrated.

China A Factor in Post War Rehabilitation of U. S. Railroads, by John Earl Baker. *Western Railway Club Official Proceedings*, April 1943, pp. 19-33. In introducing Mr. Baker, Edward Wray mentioned (pp. 18-19): ". . . He started with the Southern Pacific in 1910 and

served for six years there, particularly in connection with their operating department. He then was appointed as Adviser to the Ministry of Communications in China, which included transportation and he has served twenty-five years in that capacity and other capacities related to it . . . His last job was that of Inspector General of the Burma Road . . ." Mr. Baker stated: ". . . Now then, gentlemen, in a purely selfish way let us in the railway field do some planning for railways in the postwar period and it is in this connection that I feel that China can be of assistance to the United States and that the United States be of great assistance to China . . . (p. 20) . . . The China market for railway material will cover two fields: rehabilitation and new construction . . . (p. 22) . . . Now in addition to freight cars, passenger cars, and rolling stock of that sort, there are some other things that we have to figure on. Have you got any machine tools that you would be willing to get rid of at fairly cheap prices? Have you got any bridges that can be cut down and shipped over? Our figures for those items are very large indeed . . . As nearly as I can figure it out, the total figure for the rehabilitation of railways would be about a hundred and seventy-five million dollars . . ." (p. 24).

Dan Patch Line—History and All-Time Locomotive Roster of the MN&S, by Navarro Fosse. Railroad Magazine, August 1943, pp. 80-89. Map and Illustrations. ". . . Col. M. W. Savage, who owned the world-famous racehorse, *Dan Patch*, began supervising the construction of his railroad . . ." (p. 80).

The Earliest Diesel Railcars and Locomotives. Railway Gazette Diesel Railway Traction Supplement, April 1943, p. 32. "Already the number of those who can remember the introduction of the first diesel railway vehicles is diminishing and for that reason it is well to put on record the dates of introduction of the earlier, and often little-known diesel railcars and locomotives . . ."

FESTUNG EUROPA—Its Roof Leaks. And Germany's interior lines, only yesterday the promise of quick victory, have become her long-stretched roads to defeat. Fortune, August 1943, pp. 108-111, 216-230. Maps: The Railways of Europe, p. 108; Germany's Waterways, p. 109; ". . . the eastern regions of the Nazi empire . . . its communication network . . ." p. 111. ". . . All communication arteries of non-Russian Europe are today controlled by German military demands . . ."

Freight Progress Annual. Railway Age, May 22, 1943. ". . . the fourth issue . . ." (p. 980). Its Vol. 114, No. 21:979-1076, with 280 advertising pages carrying out theme of issue. Illustrations and tables. *America Has Evolved Organization for War Transportation*, pp. 1005-1008, 1029. *Railways Make Amazing Records*, pp. 1009-1016, includes *Individual Railway Performances*. *Canada's Railways in Tie with U. S. . . —Canada's Carriers Are Also Manufacturers*, pp. 1059-1062, includes: *Railways Going Into Aviation*, p. 1061; *All-Round Transportation Companies*, pp. 1061-1062.

Future Possibilities of Diesel Road Locomotives, by P. B. Jackson, Aluminum Co. of America, Cleveland, Ohio. Mechanical Engineering, May 1943, pp. 335-338, 359. Contributed by the Railroad Division, American Society of Mechanical Engineers, and presented at the annual meeting, Nov. 30-Dec. 4, 1932. Comment by A. H. Candee, W. L. Doyle, W. S. H. Hamilton, R. M. Ostermann, and A. H. Woollen, in September 1943 issue, pp. 673-675. Abstracts of Mr. Jackson's paper in Railway Age, February 13, 1943, pp. 353-358, and in Railway Gazette Diesel Railway Traction Section No. 134, July 1943, p. 54.

German Austerity Locomotives. Railway Gazette, June 4, 1943, p. 560. Illustrated. "Some further particulars . . . The engine was in the first place designed for use in the severe climates of occupied Eastern Europe; the driver's cab is entirely closed and the gangway to the tender is provided with a concertina passage. Crews were expected to have to work the engine in long shifts, and consequently armchairs have been provided for both driver and fireman. A hammock is provided in the driver's cab for one man to rest while the other attends the fire . . ."

Giving Aviation A Future, by Francis A. Callery, vice president in charge of finance, Consolidated Vultee Aircraft Corporation. Plane Talk, September, 1943, pp. 20-23. ". . . Much has been published to show the American people the magnificent things that aviation can do post-war. Little has yet been said about the fact that these things cannot come to pass unless a healthy aviation industry survives . . . (p. 20) . . . The question of reserves for post-war transition is perhaps the most important problem now confronting the aircraft industry. The problem for the industry can well be illustrated by using the figures of Consolidated Aircraft . . ." (p. 21)

History Drew Our Railway Map—Museum Pieces Tell the Tale of the Tracks, by Hermia Oliver, Africana Museum, Johannesburg. South African Railways and Harbours Magazine, March 1943, pp. 201-206. Illustrated.

Improvements in Freight Cars Since World War I, by John D. Rezner, superintendent, Car Department, Burlington Lines. Western Railway Club. Official Proceedings, March 1943, pp. 13-16. Discussion pp. 16-17.

Iran in Wartime—Through Fabulous Persia, Hub of the Middle East, Americans, Britons, and Iranians, Keep Sinews of War Moving to the Embattled Soviet Union, by John N. Greely, brigadier general, United States Army. The National Geographic Magazine, August 1943, pp. 129-156. Illustrated. Map showing railroads in operation and projected, highways, and oil pipe lines in Iran, p. 132.

Mexican Railways Rebuilt for War and Peace, by Seymour T. R. Abt, Transportation Unit, Bureau of Foreign and Domestic Commerce. Foreign Commerce Weekly, U. S. Department of Commerce, July 17, 1943, pp. 3-5, 29-30. Illustrated. Map: Railways of Mexico, p. 4.

Right and Left-Hand Running. Railway Gazette, July 9, 1943, p. 33.

" . . . The position at the outbreak of war was that trains ran on the left-hand track, . . . in Great Britain and all countries of the British Commonwealth (except Canada); in South America, China, Egypt, and Japan; and, among European countries, in Austria and her succession states (with the exception of some sections of line), Belgium, France (excluding Alsace-Lorraine and on the Paris Metro), Hungary, Italy, Portugal, Sweden and Switzerland, and on the Northern Railway of Spain. Right-hand running is in force in Canada, the United States of America (except on the Chicago & North Western Railway, which was originally an English concern and runs left handed), Soviet Russia, Turkey, and (in Europe) the Baltic States, Denmark, Finland, Germany, Holland, and Norway, and on the M. Z. A. of Spain . . . "

Sail Power. Railway Gazette, July 9, 1943, p. 47. Illustrations show: German military use of sail power on the Russian front; Wind-propelled trolley used on the Jamnagar & Dwarka Railway (India); Sail propulsion on a private quarry railway at Cliffe, Kent; Sail-propelled trolley used by life-boatmen for traversing the Spurn Head Railway, Yorkshire; Wartime use of windpower by Chilean nitrate miners, in view of the petrol shortage.

Seasoned Women Railroaders, by Margaret T. Stevens. The Quotarian, May, 1943, pp. 8-9, 16. " . . . of the United States and Canada . . ." Illustrated.

Shoofly in Tunisia, by Thomas J. Campbell, captain, Corps of Engineers. The Military Engineer, September 1943, pp. 441-444. Illustrated. " . . . A series of demolished bridges, four in all, marked the railroad from Tebessa to Thelepte, and this railroad was a most important supply route through the sector occupied by the American Second Corps.

To repair the damage, Lt. Col. William T. Carter, Corps Engineer, had at his disposal a Railroad Battalion aided by some British Bridge Engineers, and an Engineer Regiment (Combat).

His chief headache was a 250-foot span, 50 feet high, over Oued el Hatab, some six miles northwest of Kasserine . . . This the Germans had completely wrecked. . . All in all, the experts concluded, the bridge might be repaired in two or three weeks.

Commanding one Engineer Battalion was Lt. Col. Henry K. Kellogg, who is not only a fire-eating Texan, but a rabid railroad fan and construction engineer. He accompanied the reconnaissance party, looked at this particular bridge, and said, 'Hell! We can shoofly that and have trains running in a week.' He got the job.

A company of Engineers was moved near the site, Thursday, March 4. Some of the junior officers did not know what a shoofly was, but they found out the next day and were off in a cloud of smoke. . . (p. 441) . . . In nine days, the company plus one platoon had relaid 2,800 feet of track through a cut of 500 cubic yards, and over 69,000 cubic yards of fill. . .

Actually, Capt. Edgar Pohlman's railroaders had another full day to dress track before the train did arrive. A little Diesel locomotive pushed a flat car loaded with rocks into Kasserine on Monday morning and Col. Kellogg was off looking for bigger and better shooflies. And he found one. (p. 442)." "The Second Shoofly" pp. 443-444, four miles east from Kasserine, ". . . had been completed in nine days as had the one northwest of Kasserine; but considerably more work was involved. Altogether, 5,600 feet of track had been relaid, 7,030 cubic yards of earth excavated, and the fill totaled 17,800 cubic yards. . ." (p. 444).

Transport Services and the War—171— . Railway Gazette, January 1, 1943— . A weekly section of Railway Gazette noting the latest developments in wartime transportation from Extensions of camel caravans in Asia to China, and the horse-drawn coaches in Eire, through notes of the latest in wartime railroading in various parts of the world, with monthly summaries of the results of the RAF and USAAF "railway targets" in continental Europe. Answers many questions as to what's going on, why and when, for readers who follow the series regularly.

New Books

"RAILROADING FROM THE HEAD END," by S. Kip Farrington, Jr., 296 pages, 9x6. Bound in cloth. Illustrated. Published by Doubleday, Doran & Co., Inc., Garden City, N. Y. Price \$3.50.

This is a story of railroading, of twentieth century up-to-the-minute railroading and it has been brought home to the reader with the accompanying odors of hot oil and soft coal smoke.

Since the last World War railroading has changed—decidedly for the better. Freight trains no longer crawl over the division but move at a speed that almost equals that of most of the passenger trains a couple of decades ago. The passenger job, in its turn, has been "pepped up" to greater speed and speeds of sixty miles an hour are no longer a rarity.

All this called for planning and the spending of money wisely. Passenger and freight terminals had to be improved, hump yards with the car retarders built, new and heavier rails, track alignment levelled, curves eased, new equipment purchased or the old renovated and lastly, powerful locomotives of either steam or diesel had to be designed and built to handle these "thunderbolts."

All of this the author has told, simply and clearly and with first-hand knowledge. You ride with him on a fast freight job and on the "Hiawatha." You visit the home of the Pacific Fruit Express, that huge coal-carrying concern—"the old Reliable"—the L. & N. and other places of this vast domain. He discusses with you the development of the Hudson type on the New York Central and its performance on that road. Other types are included, no author of today could ignore them.

One rather unusual thing in this book, the author has expressed a decided preference for certain types of locomotives on certain of our railroads. While this is not uncommon among the "fans" themselves, I know of no good reason why an author should be denied this privilege. We are still at liberty to express our likes and dislikes and while I may not agree with him in some of his choices, I respect his opinions of them for all of that.

To the mind of this critic the author has succeeded admirably in telling the reader what the railroads have accomplished in the last few years. He has had first hand knowledge of the subject and the capability of imparting it in a simple and interesting fashion. It is a book that the majority of our members will want to add to their libraries and it is a book that is well worth owning.

"TRANSPORT FOR WAR," by Edward Hungerford. 272 pages, 8 3/8 x 5 1/2. Bound in cloth. Published by E. P. Dutton & Co., Inc., New York, N. Y. Price \$3.00.

Long before the disaster at Pearl Harbor, our railroads prepared for this conflict and this book tells the layman in plain everyday English, not only what the railroad is doing, but other forms of transport as well,

to help win this war. Chapters include the waterway, the river, the highway and the airway.

The major portion of the book is devoted to the railway and this will appeal to the majority of our members. To those of us who live near the main line of an important railway system it is not difficult to appreciate this increase in traffic. To those that are employed by a railroad—they know all about it anyway.

Mr. Hungerford presents some interesting figures relative to the Washington Terminal. This terminal is handling 125,000 passengers daily, 150,000 on some days over the week-ends, more than twice as many as handled during World War I. Formerly twenty-five clerks handled the Pullman reservations, now it requires over one hundred. Ticket windows have been increased from eighteen to sixty-five and so it goes. No, the Washington terminal is none too large for its present job.

Many members, whatever their convictions may be relative to the electrification of our railroads will get a thrill out of his ride from Washington to New York City. This is probably the busiest 225 mile stretch of railroad in the world. On the day that Franklin D. Roosevelt was inaugurated for the third time President of the United States, the Pennsylvania prided itself with the fact that it had carried 66,000 people without accident or serious delay. In April, 1942, the daily average commenced to rise until it is now over one hundred thousand. On Sept. 5, 1942, this stretch of road handled 137,000 passengers. Electrification made this possible.

But to return to his trip over this division. Leaving Washington at 4.00 P. M. on the "Congressional Limited (First Section)", the 225 miles was covered in 201 minutes. The needle of the speedometer in the observation car kept close to eighty, yet there were many stretches at ninety-seven miles per hour. During the trip sixty-four southbound passenger trains and six freights were passed and four passenger and four freights were overtaken—a total of seventy-eight trains, or one every three minutes! Make no mistake—this is a busy stretch of track and this is railroading!

Other roads come in for their share of the commendation of the author—the Southern Pacific, Santa Fe, New York Central—and all of the others—all in fact are serving and serving well the needs of the armed forces of this country. I think that every American ought to read this book because it serves to illustrate how vitally important transportation is to this country, in time of peace as well as in time of war. Furthermore it serves as a record of what can be accomplished by private enterprise and initiative.

"RAILWAYS AND PUBLIC OPINION—ELEVEN DECADES," by P. Harvey Middleton, 169 pages, 9 x 6. Bound in cloth. Published by The Railway Business Association, First National Bank Building, Chicago, Illinois. For price and copies, apply to the publisher.

The author of this book is the Secretary of the Railway Business Association and as such, he treats the subject from a more humane point

of view than is the wont of some authors whose sole asset is the fact that they are on the faculty of some college.

Naturally, some history had to be included and it is presented briefly but interestingly, with the aid of maps. The concluding chapter covers the subject of railways and the national defense. Whatever our opinions may be on the subject of our railroads during the decades that followed the Civil War to the dawn of the twentieth century, I prefer to consider them as inanimate tools of their managers. Granted that certain sharp practices were followed that today we admit and know are wrong. But were the railroads the only ones that indulged in these misdemeanors? Can the affirmative be answered after one has read the history of Standard Oil, the meat packers, and some other industries? Rather, it was a condition that existed during those decades while this youthful nation was so rapidly growing and, it seems to me, that all affected our livelihood though the railroads were first singled out for regulation.

What so many of the authors miss while giving the railroads a drab coat of paint during these decades, is the fact that they were the means of opening up the vast west, yes, if you wish to put it a bit stronger, they were the means of keeping this country united into one strong nation. If they did no more than these two things, they deserve our eternal gratitude. Times change, so do morals and manners. What was considered ethical sixty years may be unlawful today. The same applies to our present day practices for who can forecast the future?

Personally I thoroughly enjoyed the author's presentation of the subject. It is high time that something of the sort appear in print tho' doubtless many will consider it as rank propaganda. On the other hand, if this be "propaganda," my comment will be—let's have more of it. We need to dust off some of the dark places, study them in their true light and then let each one draw his conclusions according to his honest convictions. This the author appears to have done. He should be commended for his efforts.

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Bulletin #60—The Railroads of Oklahoma and Bulletin #61A—The Fulton County Narrow Gauge Ry. were devoted exclusively to these subjects.





